1908.

CITY AND COUNTY OF BRISTOL.

ANNUAL REPORT

OF THE

Medical Officer of Health,

AND OF THE

General Medical Superintendent of the City Hospitals.

FURTHER REPORT ON "CARRIER" TYPHOID.

Printed by order of the Health Committee.

BRISTOL:
BENNETT BROTHERS LD., PRINTERS, COUNTERSLIP.
1909.

HEALTH COMMITTEE.

1908.

The Right Honourable The Lord Mayor:

Edward Robinson, Esq.

Chairman:

Councillor Colston Wintle., M.R.C.S.

Deputy Chairman:

Councillor Frank Moore.

Alderman Terrett.

Councillor Henry Anstey.
(*Chairman of Finance Sub-Committee*).

„ A. Dowling.

„ E. M. Dyer.

„ A. E. Ellery.

„ A. Froud.

„ H. J. Maggs.

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„ W. G. Pope.

„ Saml. Shirley.

„ J. S. G. W. Stroud

„ C. J. Thorne.

CITY OF BRISTOL.

HEALTH DEPARTMENT, 1908.

Medical Officer of Health: D. S. Davies, M.D., D.P.H.

Chief Inspector: J. W. Kirley.

Superintendent Inspector: ‡*T. Lowther.

District Inspectors (12)*:*

	District.		District.
H. Calcutt	(Central)	*†F. R. Slade	(St. Paul)
G. E. Bush	(Bedminster)	*†A. E. King	(Knowle)
*H. Hasell	(Horfield)	*†H. C. Leat	(S. Geo. W.)
*J. Wilkinson	(Clifton)	*†T. J. Crofts	(Easton)
*H. J. Kirley	(Cotham)	*F. Kirley	(S. George E.)
*J. T. Lyons	(Stapleton)	*G. Best	(Bedminster)

Inspector of Common Lodging Houses and Bakehouses:

*S. O. Dimond.

Inspector of Dairies, Cowsheds, and Milkshops:

*†E. J. Casely.

Inspectors of Slaughter Houses, Meat, and Fish:

S. Thomas. | *A. Gitsham.

Inspectors of Workshops, &c.:

*†A. W. Griffiths. | *W. J. Wreford.

Chief Clerk: L. W. A. Statton.

Statistical Clerk: W. N. Brown.

Clerks:

C. W. M. Vincent, L. P. Wilson, E. E. Masters, J. G. Watson.

CITY HOSPITALS.

General Medical Superintendent: (Supervisory) D. S. Davies, M.D., D.P.H.

Visiting Medical Officer at Novers Hill Hospital:

G. C. Pauli, M.R.C.S.

Resident Medical Officer at Ham Green Hospital:

J. Fletcher, M.D., D.P.H.

PORT OF BRISTOL.

Port Medical Officer of Health:

D. S. Davies. M.D., D.P.H.

Assistant Port M.O.H.: J. C. Heaven, M.R.C.S., D.P.H.

Chief Inspector: S. O. Dimond.

Port Inspector: A. Dickens.

Assistant Port Inspector and Boatman: J. Rex.

Master of S.S. "Luath": §G. Jackson.

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‡ Surveyor's Certificate, Sanitary Institute.
* Inspector's Certificate, Sanitary Institute.
† Registered Plumber.
§ Certificated Pilot for Bristol Channel.

REPORT.

PART I.

Population and Acreage.

My Lord Mayor and Gentlemen,

As a result of the Bristol Extension Act, 1904, a further addition of 13,000 persons, upon an area of 5,347 acres increased the total population of the City at the end of 1904 to 354,000 persons, living upon an area of 17,000 acres.

The estimated population of the City at the middle of 1908 was 372,785.

Table A.

Showing Population, Acreage, and number of Persons per Acre (Density) in each of the Registration Sub-Districts of Bristol for 1891 compared with the same data for 1908.

Registration Sub-Districts, 1891. (Census Year)	Acreage.	Population middle of 1891.	Density, 1891.	Registration Sub-District, 1908.	†Acreage.	Population middle of 1908.	Density 1908.
S. Mary Redcliff ...	170	9,287	54·6	‖ Bristol Central. S. Mary Redcliff (Including Castle Precincts, and part of S. Paul). ‡S. Paul and S. Augustine	810	39,087	48·4
Castle Precincts ...	119	5,558	46·7				
S. Paul	148	19,046	128·6				
S. James	68	7,817	114·9				
S. Augustine ...	250	13,788	55·1				
Bedminster ...	992	45,812	46·1	Bedminster, Knowle, etc. ... (Including Somerset added area)	1,924 1,184	87,246	28·0
Clifton	921	29,361	31·8	Clifton	1,504	44,539	29·6
Ashley	434	24,190	55·7	Ashley	1,365	46,802	34·2
Westbury	692	15,540	22·4				
				S. George	1,846	69,511	37·6
S. Philip	744	51,650	69·6	S. Philip	736	48,152	65·4
				Stapleton	2,573	26,252	10·2
				Westbury-on-Trym (Including the whole of Avonmouth, Shirehampton, Westbury-on-Trym, and part of Henbury, added to City from Barton Regis Rural District, 1st October, 1904.)	5,347	11,196	2·0
Bristol City (1891)	4,538*	222 049	48·93	Bristol City (1908)	17,289	372,785	21·56

* Ordnance calculation, including water areas.

† Census, 1901, and including district added on 1st October, 1904.

‡ The Registrar General of Births, Deaths and Marriages, ordered and declared, that on and after 1st April, 1904, S. Augustine Sub-District shall be united with S. Paul Sub-District, and the enlarged Sub-District so formed, shall be called and known as S. Paul and S. Augustine Sub-District.

‖ The Registrar General of Births, Deaths and Marriages, ordered and declared, that on and after 1st December, 1905, the S. Mary Redcliff Sub-District shall be united with S. Paul and S. Augustine Sub-District, the enlarged Sub-District to be called and known as Bristol Central Sub-District.

GENERAL AND VITAL STATISTICS.

Population.

	Area in Acres	Population (Estimated)	Rateable Value
City of Bristol, 1897	4,661	232,242	£1,153,311
Additions of 1897	6,756	85,800	£246,815
Additions of 1904	5,347	13,443	£69,560
City of Bristol, 1908	17,004	372,785	£1,834,702

This table shows that the City covers not quite four times the acreage which it covered in 1897, and is more populous by 140,543 persons. The City Medical Officer of Health has inherited the duties and responsibilities of the Medical Officers of Health of this added city; considerable economy has thus been effected in the medical administration, as the salaries of the various medical officers have lapsed.

There is no salaried Assistant Medical Officer to help in either City or Port work, but the occasional Medical Assistance, required in emergency, is paid for by fees for work done. The various extensions have resulted in the displacement of five part-time Medical Officers of Health, whose districts have been absorbed.

The additional unassisted work thus devolving on the Medical Officer of Health, includes:—

City.—In 1897 the area of the City was increased by 6,756 acres, and the population by 85,800 persons.

In 1904, the area was further increased by an addition of 5,347 acres, and the population by 13,443.

The districts included three Local Board Districts, each in charge of a part-time Medical Officer of Health, and parts of two Rural areas.

Port.—In 1897 responsibility for the Gloucester Port work, under the Cholera, Plague and Yellow Fever Regulations, was imposed by special order upon the Bristol Port Medical Officer of Health.

In 1907, the Public Health (Regulations as to Food) Act imposed all responsibility for the inspection of Imported Food for the whole Port of Bristol upon the Port Medical Officer of Health. This has hitherto been carried out only in Ports under a whole time Port Medical Officer of Health, and is particularly exacting.

No salaries are assigned for any of the above added duties.

Births.

The births registered in Bristol in 1908 were 8,753 of which 259 were returned as illegitimate, a percentage of 2·9.

The birth rate for the year was 23·0 a decrease on the rate of last year, which was 24·2 ; the rate has since 1882 shown an almost continuous decrease. (Table B). The rate for the 76 great towns in 1908 is 26·9.

The excess of births over deaths during the year 1908 (*natural increase of population*) is 3,523. The estimated *actual increase* from 1907 to 1908 is 4,806.

Marriages.

2,806 Marriages took place within the borough of Bristol during 1908. The annual marriage rate per 1,000 living is thus 7·5 compared with 8·1, the rate of last year.

Deaths.

5,230 Deaths were registered in the district during the 53 weeks ending the 2nd January, 1909, of which 81 or 1·5 per cent. were returned as deaths of illegitimate children. The recorded general death rate for the year, uncorrected for age and sex distribution is 13·76 per 1,000 living, compared with a rate of 13·30 for the year 1907. The death rate recorded for the 76 great towns in 1908 is 14·9.

Infant Mortality.

Of the 5,230 Deaths, 1,102 were of infants under one year. The proportion of these deaths to every 1,000 births (infant mortality) was 125·8, compared with a rate of 100·9 for the year 1907, 127·6 for the year 1906, 122·4 for the year 1905, 133·7 for the year 1904, and 116·3 for 1903. The rate recorded in the 76 great towns is 129.

The Infant Mortality rate varied thus :—

Bristol Central	163·0
S. Philip	162·0
Bedminster	122·9
S. George	121·1
Knowle	97·2
Ashley	96·7
Stapleton	96·7
Clifton	91·4
Westbury-on-Trym	86·4

In Table B. will be seen the annual infantile mortality rates in Bristol for the past 25 years.

Seven Chief Epidemic Diseases.
(Zymotics).

The rate of Mortality from the Seven Chief Epidemic Diseases, viz. : Small-pox, Measles, Scarlet Fever, Whooping Cough, Diphtheria, Fever (Typhus, Enteric Fever, and Simple Continued Fever or Pyrexia) and Diarrhœa was in 1908, 1·2 per 1,000 living, compared with a rate of 0·8 in 1907, 1·6 in 1906, 1905 and 1904, and 1·1 in 1903.

The rate recorded for the 76 great towns in 1908 is 1·5.

Annual Rates per 1,000 living. 1908.

	Births	Deaths	Principal Epidemic Diseases. Cols. 4—10.	Smallpox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa	Deaths under one year to 1,000 Births
Cols. ...	1	2	3	4	5	6	7	8	9	10	11
England and Wales	26·5	14·7	1·29	0·00	0·22	0·08	0·15	0·27	0·07	0·50	121
76 Great Towns	27·0	14·9	1·59	0·00	0·31	0·10	0·16	0·29	0·08	0·65	128
142 Smaller Towns	26 0	14·0	1·26	0·00	0·20	0 06	0·15	0·25	0·08	0·52	124
England and Wales less the 218 Towns	26·2	14·7	0·99	0·00	0·13	0·06	0·15	0·25	0·07	0·33	110
Bristol	**23·1**	**13·6**	**1·16**	**0·00**	**0·26**	**0·03**	**0·17**	**0·34**	**0·02**	**0·34**	**126**

Mortality at Ages between 5 and 65.

2,097 Deaths were returned, corresponding to an annual rate of mortality per 1,000 living, between these ages, of 6·5 compared with a rate of 7·0 in 1907, 7·1 in 1906, and 7·7 in 1905. The new tables of the Local Government Board group the ages 1—65, which are no longer comparable with the age grouping 1—60, adopted by the Registrar-General for the large towns.

Mortality amongst Aged People.

1,522 Deaths of Persons aged 65 and upwards were registered, whose ages averaged 75 years and 5 months. The rate of mortality per 1,000 amongst persons living at these ages was in Bristol 86·2, compared with 87·7 in 1907, and 83·8 in 1906,

Prevalence of Sickness in 1908.

Small-pox.

The prevalence and fatality of this disease is here shown for the past 19 years :—

SMALL-POX.

Year.	Cases Notified.	Attacks per 100,000 Living.	Deaths.	Deaths per 100,000 Living.	Case Mortality per cent.
1890	0	–	0	–	—
1891	16	7	1	0·4	6·2
1892	0	–	0	–	—
1893	165	73	20	8	12·1
1894	201	88	16	7	7·9
1895	4	1	0	–	—
1896	42	18	5	2	11·9
1897	10	4	1	0·4	10
1898*	2	0·6	0	–	—
1899	0	–	0	–	—
1900	0	–	0	–	—
1901	1	0·3	0	–	—
1902	4	1	2	0·6	50
1903	46	14	3	0·8	6·5
1904‡	34	9	1	0·2	2·9
1905	13	3	0	–	—
1906	32	8	0	–	—
1907	6§	1·6	1	0·2	16·6
1908	1	0·2	0	–	—

* City Extended. ‡ City again Extended in 1904.
§ Including one Port case.

It is evident from this Table that, since notification began (1889-90), Small-pox has only once (1893-4) assumed epidemic proportions ; in every other year when the disease was brought to the City, the cases have either been confined to those actually introduced, or spread has been successfully limited to the primary offshoots of the introduced case or cases.

Small-pox in 1908.

On December 19th, a case of Small-pox was notified, A.M. 39, M, a corn-porter. He sickened on 13th December, and had been working on the S.S. "Pendarvis," from Marinpol (Sea of Azov) unloading barley in Portishead Dock from November 30th to December 6th. No sickness was reported or found on the vessel on arrival or during her stay in the Port. The case was discharged cured on January 23rd, 1909.

Further cases occurred in January, 1909, which will be dealt with in the Report for that year.

Scarlet Fever or Scarlatina.

During the year 1908, 486 cases of Scarlet fever were notified, and 10 deaths occurred, giving a case mortality of 2·0 per cent.

The prevalence of, and fatality from, this disease for the past nineteen years, that is to say, since Notification commenced, is shown here. Columns 2 and 4 should be used in comparing different years, as they are adjusted for the varying populations.

SCARLET FEVER.

	1	2	3	4	5
Year.	Cases Notified.	Attacks per 100,000 Living.	Deaths.	Deaths per 100,000 Living.	Case Mortality per Cent.
1890	559[*2]	253	40	18	7·1
1891	888	400	37	17	4·1
1892	1,442	644	47	21	3·2
1893	1,245	553	35	16	2·8
1894	485	214	16	7	3·2
1895	562	252	16	7	2·8
1896	1,352	586	59	24	4·3
1897	511	220	18	7	3·5
1898*	382	120	14	4	3·6
1899	697	217	13	4	1·8
1900	1,971	606	39	12	1·9
1901	2,206	670	36	10	1·6
1902	2,724	793	66	19	2·4
1903	2,168	639	49	14	2·2
1904§	1,258	366	36	10	2·8
1905	1,085	302	39	10	3·5
1906	1,019	280	27	7	2·6
1907	886	240	26	7	2·6
1908	486	127	10	2	2·0

* City Extended. § The City has been further Extended in 1904.

[*2] Notification commenced on February 12th, 1890, so that the case mortality for this year is probably overstated.

The disease was decreasingly prevalent through the first three quarters of the year, but increased during the fourth quarter.

The type of disease has again been mild, and the mortality is the lowest recorded over a long series of years.

The distribution of attacks by age is shown below :—

0–1	1–5	5–15	15–25	25+	Total.
4	156	276	36	14	486

The distribution of the disease in each quarter of the year is shown in the following table for each Registration Sub-district of the City :—

SCARLET FEVER.

REGISTRATION Sub-District.	CASES NOTIFIED.				Year, 1908	Attack Rate per 100,000 Living
	1st Qr.	2nd Qr	3rd Qr	4th Qr		
Ashley	10	19	11	22	62	129
Bedminster	11	21	13	26	71	99
Bristol Central ...	12	15	16	15	58	115
Clifton	16	11	13	25	65	143
Knowle	4	7	6	2	19	168
S. George	27	17	9	44	97	136
S. Philip	17	4	9	34	64	150
Stapleton	4	9	2	11	26	97
Westbury-on-Trym ...	5	—	4	1	10	87
Public Institutions ..	3	6	1	—	10	—
Not belonging to City ...	—	—	4	—	4	—
Total	109	109	88	180	486	127

The attack rate per 100,000 population was lowest in Westbury-on-Trym, Stapleton, and Bedminster, and highest in Bristol Central, and Clifton.

Isolation in Scarlet Fever at a public Hospital is not needed for the children of persons in good circumstances, who will indeed do as well or better at home at the expense of some little inconvenience and trouble to the parents. Isolation Hospitals have their use in securing isolation in cases which cannot possibly receive adequate attention at home ; as, for example, amongst the homes of the poorer wage-earners, with large families and few rooms.

The epidemic of Scarlet Fever, which began in 1900 has afforded the first opportunity we have had of observing the habits of this disease in the extended City. The added districts have proved very susceptible of infection, as was anticipated, and the immense increase in population and area has had the marked effect of prolonging the outbreak, which now, however, appears to have reached its lowest point, as the number of notified cases is only a little more than half the number notified last year, and is less than in any year since 1898.

The prevalence of Scarlet Fever bears no relation to the " Sanitary " condition of the district, it is a contact-spread disease, and is largely kept alive by mild cases which may be unrecognised (missed cases—" carriers "). The influence of infected clothing and infected premises in this disease has probably been over-estimated, while the influence of " personal " infection has been much under-estimated. Schools may have considerable influence in the spread of Scarlet Fever.

The difference in the fatality of Scarlet Fever forty years ago and now is quite remarkable. For instance, in 1863 and the following year over 1,100 deaths occurred from this disease. In 1869 and 1870 over 900 deaths occurred, in 1875 and 1876 over 700, and in 1880 and 1881 nearly 400. In 1886 and 1887, 300 deaths occurred. The next epidemic was in 1896, when 59 deaths resulted. In 1900 a larger epidemic caused only 39 deaths, in 1901 a still greater prevalence of the disease resulted in only 36 deaths, while in 1902 the deaths rose to 66. The population in 1908 was 372,785 compared with 158,000 in 1863, If there had been a similar loss in regard to population as there was in the epidemic of 1863, the number of deaths in 1908 would have reached 2,000 instead of being only 10.

The Death-rate for Scarlet Fever, 2 per 100,000 population, is the lowest rate ever recorded in the City, and the attack rate of 127 per 100,000 population is the lowest rate since Notification commenced in 1890, with the exception of 1898, when it was 120.

The type of disease, judged by the case mortality, is much milder now than it was 40 years ago, hence it is argued that we may revert to the fatal epidemics which were then experienced. But the favourable alteration in type is probably, in large part, a result, not of general "sanitary" improvement, but of the development of that part of Public Health work which secures removal and care in Hospital for those patients who, if kept at home amongst large families in small houses, would, by accumulation of infection, lead to septic and fatal forms of the disease. It is in this, I believe, that the value of judicious use of isolation hospitals consists ; for in large cities it is not to be expected that hospital isolation can succeed in blotting out a disease which is perennially kept going by personal infection through undiscovered cases. It is noteworthy that the improvement in the fatality returns has been maintained in spite of the unfavourable factor in recent years of increasing school attendance

Enteric Fever (Typhoid Fever).

During the year 1908, 103 cases of Enteric Fever were notified, and 10 deaths occurred, giving a case mortality of 9 per cent.

The prevalence and fatality from this disease for nineteen years past is here shown :—

ENTERIC FEVER.

Years.	1 Cases Notified.	2 Attacks per 100,000 Living.	3 Deaths.	4 Deaths per 100,000. Living	5 Case Mortality per Cent.
1890*2	122	55	33	14	27·0
1891	116	52	23	10	19·6
1892	135	60	18	8	13·3
1893	122	54	26	11	21·3
1894	90	39	21	10	23·3
1895	89	39	22	9	24·7
1896	110	47	20	8	18·1
1897	343	147†	47	20	17·4
1898*	113	35	26	8	23
1899	219	68	35	10	16
1900	293	90	44	13	15
1901	281	85	40	12	14
1902	319	93	58	17	18
1903	134	39	21	6	15
1904‡	172	50	26	7	15
1905	76	21	13	3	17
1906	120	33	21	5	17
1907	74	20	15	4	20
1908	103	27	10	2	9

* Extended City † Milk Outbreak introduced from the County.

*2 Notification commenced February 12th, 1890, so that the case mortality for this year is probably overstated. ‡ City again extended in 1904.

No estimate can be made as to the number of cases occurring before 1890, when Notification commenced; the high figures of 1897 are due to the introduced milk outbreak of that year. In 1897, the City, containing 232,242 people, was extended, and in 1904 contained 343,204 persons, an increase of 110,962 persons. In 1904, a further extension was made. Allowance in columns 2 and 4 is made for the increase of population year by year, and the figures in these columns should be used for comparison. The attack rate fell very considerably in 1903 and 1904 from the high rate of 1902, and the death-rates (Col. 4) for the years 1903 and 1904 were the lowest recorded up to then.

In 1908 the attack rate rose slightly compared with that of 1907, but the number of deaths, the death rate, and the case mortality per cent. are the lowest on record since notification began in 1890.

The distribution of the disease in each quarter of the year is shown in the following table, for each Registration Sub-district of the City. The Sub-districts most affected are seen to be Knowle, S. George and S. Philip.

REGISTRATION. Sub-District.	CASES NOTIFIED.				Year 1908.	Attack Rate per 100,000 living.
	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.		
Ashley	3	3	4	1	11	23
Bedminster	—	3	2	3	8	11
Bristol Central	4	2	1	6	13	32
Clifton	—	1	—	—	1	2
Knowle	—	—	2	6	8	45
S. George	12	7	2	7	28	39
S. Philip	5	4	6	3	18	36
Stapleton	—	1	1	2	4	14
Westbury-on-Trym ..	—	—	1	—	1	8
Municipal Institutions ..	—	—	—	2	2	—
Not belonging to City ..	1	1	6	1	9	—
Total ...	25	22	25	31	103	27

Enteric Fever is admitted for treatment into the Public Institutions, and 66 cases (8 from outside the City) were nursed in the Royal Infirmary, General Hospital, Children's Hospital, Cossham Hospital and Ham Green Hospital, through the year ; 6 cases were treated by the Guardians. With the exception of 12 cases nursed at Clift House in 1897, no provision had been made for this disease in the City Hospitals before July, 1899, and cases, if not admitted to the general Hospitals, had to remain at home. There is still insufficient general isolation accommodation to meet any emergency, and this insufficiency has been considerably accentuated by the extension of the City and the consequent great increase in population, as well as by the undertaking to provide for the Guardian's cases, and by the closing (July, 1906) of Clift House Hospital, for Diphtheria.

TYPHOID FEVER.

"Chronic Typhoid Carriers."

A.—THE BRENTRY CASE.

In my Annual Report for the year 1907 [1], I included a full account of the Outbreak of Typhoid Fever at Brentry Inebriate Homes.

It may be remembered that Mrs. H., an inmate, who was employed in the kitchen and also acted as dairy woman, was implicated by circumstantial evidence as the probable cause, in November, 1907 ; and in December, 1907, typhoid bacilli were obtained from her fæces. She had herself suffered from a severe attack of typhoid fever in 1901. The total number of cases at Brentry from September, 1906, to November, 1907, was 28, of which two proved fatal.

Further enquiry showed that, previously, in May, 1904 [2], when the same woman was cook at a Girls' Home at Brislington, 25 out of 36 girls contracted typhoid fever,

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[1] Annual Report of the Medical Officer of Health for Bristol, 1907.

[2] "Carrier" Typhoid. D. S. Davies and I. Walker Hall. Proceedings of the Royal Society of Medicine, April, 1908.

8 others were taken with suspicious symptoms, and there were again two deaths [2].

Professor Walker Hall undertook the pathological investigation into the case.

From that time the fæces were frequently examined, and her clinical condition duly noted. After 20th December when typhoid bacilli were first recovered from her fæces, negative results were the rule until the following April 14th, when a luxuriant growth of B. typhosus appeared.

Further daily examinations showed the organisms to be present on May 11th, 21st, and 29th, and on June 10th. The urine was not found to yield the B. typhosus.

APPARENT AUTO-INFECTION BY A "CARRIER."

About May 21st, 1908, Mrs. H. herself fell ill. The pulse rate was 120, the temperature was 100°F., and she presented a "typhoid" appearance. From a careful consideration of her symptoms [3] we concluded that the patient was probably suffering from a self-inflicted attack of typhoid fever, although we recognise the fact that the attack may have been a cholecystitis, or some form of enteritis. The associated presence of *bacillus typhosus* in the stools led us to regard it probably as a typhoid enteritis. The duration of the illness was about three weeks.

SUBSEQUENT EVENTS AT BRENTRY.

SPORADIC CASES OF TYPHOID FEVER.

Dr. R. Welsh Branthwaite, the Home Office Medical Inspector under the Inebriate Acts, has kindly supplied the following information :—

After it had been determined in November, 1907, that Mrs. H. was the causal agent in the Typhoid Fever Outbreak, measures were taken to isolate her, especially from any participation in the handling of food, as it appears that typhoid carriers probably infect food with their hands which are not cleansed or insufficiently cleansed after attending to the calls of nature.

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[2] "Carrier" Typhoid. D. S. Davies and I. Walker Hall. Proceedings of the Royal Society of Medicine, April, 1908.

[3] The "Effective Periods" of Typhoid Carriers. Davies and Walker Hall. *The Lancet* November 28th, 1908.

All the inmates who had suffered from typhoid fever, either during the 1906-07 outbreak or previously, were kept in an isolation cottage, in order to make sure that no other carriers existed amongst inmates other than Mrs. H.

On July 27th, 1908, a woman named A.L. (44), developed typhoid fever. It appeared upon enquiry that Mrs. H., who had been daily closely associated with this woman for some months, was in the habit, after she had eaten as much of her lunch as she wanted, of handing the remainder to her companion; there is also every reason to believe that Mrs. H. passed on pins out of her mouth, bit off cotton from reels (as women will) and probably gave many chances of unclean material being carried from her hands to those of A.L. The habit of sucking such cotton to thread it, and putting pins into the mouth provides sufficient opportunity for infected material to be carried from A.L.'s hands to her mouth. This woman was probably ill for a week before her condition was recognised as typhoid fever, during which time she was about amongst other inmates.

On August 3rd, a woman, N.L. (27), developed typhoid fever. This patient, apparently, had no communication with Mrs. H., but she slept in A.L.'s dormitory, and was in close association with her during the week which elapsed before the disease was recognised.

About the same time, August 4th, a third woman, L.L. (36), developed Typhoid fever. This patient had suffered from an attack of what was believed to be Enteric fever some years before her admission to Brentry. She was, therefore, considered immune, possibly a carrier, and had been put in the isolation cottage. There was ample evidence of transference of food between her and Mrs. H. at the common table, in addition to which A.L. and N.L. was known to have a predilection for such portions of Mrs. H.'s beef tea, as the latter was unable to finish.

Since August 4th, 1908, Mrs. H. was very strictly isolated from all communication of any kind with others, and no further case has occurred.

B.—THE FAMILY CASE, S. GEORGE.

A second "Carrier" case presented the following history: In September, 1907, a man, J. H——n, had Typhoid fever and died. His wife, who had nursed him prior to his removal to Hospital had a slight attack of Typhoid fever in October and November, 1907. At this time Widal examination was returned as negative. After recovery she continued her household duties, including the preparation of food for her five children, aged from 6 to 15.

No further cases occurred until June, 1908, when four out of the five children sickened with Typhoid fever, for which no local circumstances would account, nor was there any history as to diet or outside personal contact to explain their illness. The mother was apparently in perfect health, but now her blood was found to agglutinate the Bacillus Typhosus, in a dilution of 1 in 200. On several subsequent occasions the Widal reaction was obtained in similar dilutions; the fæces were examined on several occasions with negative results; but the patient proved refractory and investigations had to be discontinued.

The Health Committee, recognising the importance of full research into the conditions causing or accompanying continuous or intermittent infectivity over prolonged periods of time, with the view not only of preventing the handing on of infection, but of searching for the means of cure, arranged with University College (now Bristol University) Laboratory, to undertake the necessary pathological work. Consequently the Professor of Pathology (Prof. I. Walker Hall) has been associated with me in these cases, and his interim Report follows :—

Interim Report to the Health Committee of the Bristol Town Council upon a "Typhoid Carrier" Case.

BY THE BRISTOL UNIVERSITY COLLEGE PUBLIC HEALTH LABORATORY,

BASED UPON THE WORK OF PROFESSOR I. WALKER HALL, M.D.

It will be remembered that in June, 1908, three members of a Bristol family were simultaneously attacked with Enteric Fever. The father of the family died in September, 1907, and the mother was subsequently indisposed by an "ambulatory" type of enteric. The Bristol Health Committee promptly decided that the matter should be fully investigated from every possible standpoint, and this interim report is concerned with some of the results attained.

During the progress of the enquiry numerous papers have been published in English and continental journals upon the question of typhoid carriers. The identification of the carrier has invariably revealed the cause of hitherto unexplained sporadic outbreaks, and thus has led to the prevention of this mode of transmitting the disease. In India the provision of regulations for the removal of "carriers" from duties connected with the handling of food and drink has diminished already the incidence of enteric fever.

Some experiments which have been carried out in Indian Laboratories have shown that the typhoid bacillus is rapidly killed by exposure to strong sunlight, and that linen and bedding are less infective when exposed to air and light (1) When, however, materials contaminated with typhoid bacilli are kept in the dark and at a temperature not exceeding 70° F., I have found that the bacilli live for longer periods. In this connection it may be pointed out that the ordinary articles of underclothing are but little exposed to light and air and may therefore harbour the bacilli for some time.

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(1). Scientific Memoirs by Officers of the Medical and Sanitary Department of the Government of India, 1908. Calcutta No. 32.

A recent epidemic of enteric fever occurred at a time when the common house-fly prevails. A number of flies were caught and examined bacteriologically, and typhoid bacilli were found in the bodies of those frequenting the rooms where the typhoid patients were confined (2). It lies near to hand to infer that the passage of flies, or other parasites, over linen soiled by human excreta containing typhoid bacilli, would be sufficient to carry infection from the clothes of the carrier to food exposed to the air, and that this might constitute another means of transmitting infection from the carrier.

Recent observations (3) upon the length of time the typhoid bacillus can live in the soil tend to confirm the idea that the bacillus rarely proliferates apart from human tissues, and rapidly dies out when discharged from the body. Such work emphasises the part played by the human carrier in the actual transmission of the disease, and points to the advantages to be gained by the steps taken by the Health Committee in these cases.

The blood of the typhoid carrier is distinctly resistant to the typhoid organisms, and it is this property which probably prevents the bacillus from gaining access to the tissues generally, and confines it to the intestines and gall-bladder. The resistance is expressed by the frequent high bactericidal and agglutinating powers of the blood of typhoid carriers for the typhoid bacillus, and by the presence of substances which raise the opsonic index of the blood for this organism. These features, taken together with certain numerical changes in the type of the white cells of the blood, afford some indications for treatment.

The work carried out for the Health Committee has been directed chiefly to practical considerations. Definite attempts have been made towards a cure of the condition ; observations have been recorded with a view to facilitate the diagnosis of the carrier ; and experiments have been conducted towards the elucidation of the precise means of transmission of the organism. This has made necessary the detailed examination of twelve samples of fæces and urine, of twelve samples of blood for quantitative determinations of agglutinins, of six blood films for differential cell counts, and of a large number of bacteriological examinations of finger nails, clothes, and other materials. Much time was taken up also by negotiations and meetings with the patient and her medical attendant, who assisted the enquiry in every possible measure.

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(2). Klein. Brit. Med. Journal, Vol. II., p. 1150, 1908.

(3). Mair. Journal of Hygiene, 1908.

It may, perhaps, suffice if the results of the investigation are now presented in summarised form.

The excreta, etc., were first examined in order to obtain figures for comparison. Injections of dead typhoid bacilli (up to 1,000 millions) were then made, and a good reaction obtained. The excreta, etc., were subsequently re-examined.

It was found that the blood of this carrier contained a high percentage of agglutinins and an abnormally increased percentage of mononuclear leucocytes. After the first injection, this percentage remained unaffected, but after the second one, both were diminished. These facts are suggestive of a decrease in the number, and of the virulence, of the organisms present, and of a partial cure of the condition.

The following Tables I. and II. show the increase in the mononuclear cells of the blood and of the agglutinins, and the effect of the injections of dead bacilli in the association with a decrease in the latter substances.

TABLE I.—The effect of the bacillary injections upon the white cells.

1908	Polynuclears.		Mono-nuclears.	Transi-tionals.	Eosino-phils.
July 17		52·3.	45.	1·3.	1·6.
,, 22		66·3.	28·9.	3·3.	1·3.
,, 28	No. 1 Injection	66.	32·33.	0·33.	1·33.
Sept. 25		62.	35·63.	0·66.	1·33.
Oct. 27	No. 2 Injection	59·33.	28·66.	1·33.	1·66.

TABLE II.—The effect of the bacillary injections upon the agglutinins.

1908.		Dilution of Blood Serum.			
June 30		25.	50.	125.	250.
July 22		25.	50.	125.	250.
,, 28	No. 1 Injection	25.	50.	125.	250.
Sept. 25		25.	50.	125.	250.
Oct. 27	No. 2 Injection	25.	50.	0.	0.

Observations upon this patient and upon the carrier whose condition is fully recorded in the report (4) of the Bristol Medical Officer of Health, tend to show that there are certain periods of the year when the typhoid carrier is more likely to spread the disease (5). From January to May the fæces appear to be rarely infective, although they may contain the typhoid organism ; also, during diarrhœic attacks the organisms are more frequently present in the fæces, and the carrier becomes more dangerous.

The actual transmission of the organism appears to be by the hands or slightly soiled linen. Laboratory experiments, now in progress, have shown that from the finger nails and hands after the usual procedures following the use of the closet or lavatory, fæcal organisms may be isolated, and that the garments worn next to the anus yield similar organisms upon bacteriological examination. These results suggest that this information might with advantage be more widely known.

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(4). Report of the Medical Officer of Health for the City of Bristol, 1907.

(5). See *Lancet*. Nov. 28th, 1908, etc.

As it is not permissible to generalise upon the records of one case, the Committee may, perhaps, see their way to add to the experience already gained by conducting similar examinations upon other cases as they occur and by permitting the continuance of laboratory observations upon prevention and treatment. The Committee has the knowledge that the Brentry carrier, although isolated as well as the arrangements of that Institution permitted, was the cause of two attacks of Enteric Fever during the late summer of 1908, the infection being carried in one case by the washing of the clothes, and in the other by the eating by another inmate of the portions of food which the carrier had handled and then not consumed. Such an occurrence points to the difficulties which the Health Committee and its Officials have to deal with in these cases, and indicates the necessity for continued enquiry into the problems involved. It has been a material advance to be able to recognise the centres of infection and so to diminish the number of sporadic outbreaks of Enteric Fever. Whether the identified carriers can be sufficiently prevented from transmitting the disease, or may even be relieved of the organisms they harbour, cannot be stated until further work has solved certain questions towards whose elucidation the Committee has already contributed largely by its authorization of the investigations at Brentry and in connection with the case upon which this report is based.

Similarly, the search for the cure for the condition calls for repeated and extended experimentation upon all the cases which can be possibly utilized for the purpose. The method of cure may only be found after patient and persistent research, but its discovery will well repay all the labour expended. When it is found, Health Authorities will have in their hands not only a remedy for the typhoid convalescent and for the typhoid carrier, but a means of preventing the transmission of typhoid fever, and thus saving the expenditure of time and the danger to life which these infective outbreaks involve.

(Signed), I. WALKER HALL, M.D.

C.—A THIRD CASE OF A CHRONIC TYPHOID CARRIER. (THE DEVIZES CASE).

In November, 1907, Dr. H. Mackay, of Devizes, kindly directed my attention to the case of a woman, L.C., a cook, aged 32, who had fallen into low spirits owing to the belief that she spread Typhoid Fever wherever she went, and who voluntarily desired to subject herself to observation and treatment.

The history elicited from her is as follows :—

July, 1905	L.C. was taken ill at Calne with Typhoid fever, the nature of the disease was not at first recognised. She was subsequently removed to Bowden Hill, Chippenham, where she passed through a severe attack, and finally went home to a farm at Corsham.
September, 1905.	A sister living at home had Typhoid fever and recovered.
December, 1905.	Her father developed a fatal attack, was moved to Hospital, and died on December 12th.
December, 1905.	A brother also had Typhoid fever and recovered. This brother arrived home two days before his father was moved to Hospital, he did not share in nursing the father.

During 1906 no further illness appears to have occurred at the farm, but in

July, 1907.	A sister, home for a few months from Canada, developed Typhoid fever, and recovered. L.C. had gone to a situation in February, but went to and fro to her home.
July, 1908.	A Parlour Maid in a situation at Pickwick, Corsham, where L.C. was in service as cook, developed Typhoid fever.
July, 1908.	A House Maid in the same situation also developed Typhoid fever. There was no other Typhoid fever in the locality.
September, 1908.	A Kitchen Maid in a situation in Potterne, near Devizes, where L.C. was Cook, developed Typhoid fever. There were no other cases of Typhoid fever in the neighbourhood, and the sanitary arrangements of the house were in every way satisfactory.

In October, 1908, the patient went to the Isolation Hospital, Devizes, she was not ill, but, having seen an account of "carrier" cases of Typhoid fever, she suspected that she might have fallen into this continuously or intermittently infectious condition. She remained there one week.

On November 28th, 1908, she was admitted voluntarily, into the Bristol General Hospital, under the care of Dr. Michell Clarke.

On December 20th, 1908, a Nurse in the Bristol General
Hospital, engaged in looking after L.C.
developed Typhoid fever.

It was then arranged to admit the patient into an isolation ward at Ham Green Hospital for observation and experiment with a view to cure (January 19th, 1909). The Health Committee desired that the pathological research in this case should be taken up as a continuation of the work for which their grant was originally made, by the Bristol University College (now the University of Bristol) Public Health Laboratory, under the supervision of Professor I. Walker Hall. The investigation has been continuously in progress, Professor Hall having the assistance of Dr. Emrys Roberts, Pathologist to the Bristol General Hospital, and of Dr. James Fletcher, the Resident Medical Officer at Ham Green Hospital, and the results of the investigation will be published in due course.

RESEARCH WORK ON "TYPHOID CARRIERS" IN INDIA.

The work on the Brentry outbreak, the earliest recorded "Carrier" outbreak in England, led to the publication of a Parliamentary Paper by the Home Office, and to a continuation of research on behalf of the Local Government Board, by Drs. Thomson and Ledingham, the latter of whom had published details of an interesting outbreak of similar nature in Scotland. *1.

In India a valuable Memoir *2, has been issued under the authority of the Government, by the Sanitary Commissioner with the Government of India, Simla.

In this memoir it is pointed out how, in the case of Typhoid fever, as with other diseases, after the discovery of the causal agent, a considerable period elapsed before any important fact was added to our knowledge. During

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*1 Brit. Med. Journal, Jan, 1908, I., p. 15

*2. Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. An enquiry on Enteric Fever in India, carried out at the Central Research Institute, Kasauli, by Lieut.-Col. D. Semple, M.D., Director of the Institute, and Capt. E. D. W. Greig, M.D, Calcutta, 1908.

this interval preventive measures had to be of the nature of general sanitary precautions, in taking which without precise knowledge, a large amount of energy is dissipated and wasted. The important question is : Where is the virus of the disease stored in nature ? If the receptor of the virus is a human host, in whom it is stored up for long periods, there is an obvious incompleteness in methods directed only to deal with mere channels of diffusion, such as drains, water supplies, etc.

Just as in the case of Malta Fever, in which general sanitary measures effected no appreciable improvement, until scientific enquiry demonstrated the goat, acting as a " carrier," to be the store-house of the virus, distributed through its milk ; and appropriate measures based on this knowledge at once resulted in remarkable success ; so, in the case of Typhoid fever, as the store-house of the virus had not been determined, general sanitary measures, notably in India amongst the troops, met with scant success.

Such was the position of the Typhoid fever problem up to 1902-03, when Koch took up the investigation in Alsace-Lorraine, where the incidence of the disease was much higher than in the rest of Germany. Two very important facts emerged from this enquiry :—

1. That the saprophytic existence of the parasite of Typhoid fever outside the body (as in drains, etc.) is very short ; but

2. That it lives for prolonged periods in the body of man after he has acquired immunity by an attack of the disease. That man is, in fact, the store-house of the virus, which he disseminates in nature, and so infects susceptible individuals.

This was a great advance. The results obtained by preventive measures based on this discovery proved that the observations were correct. Typhoid fever was completely eradicated from some villages where it had been constantly present.

A large number of observations showed that under ordinary conditions in India, the saprophytic existence of the parasite outside the body (in urine, fæces, clothing, etc.) is remarkably short. On the other hand, observations on a large number of convalescents showed that a certain percentage of these immune men harbour the bacillus and continue to do so for months and probably years. As a rule the bacilli are not excreted daily, but at intervals, which may be very long, sometimes as long as three months. These men show no sign of disease, and it is impossible to determine by medical inspection whether they are free from infection or not. In addition to convalescents after an acute attack, men were found who had passed through an attack so mild that they have not reported sick ; yet they harboured the parasite; such cases were observed amongst attendants on Typhoid fever cases (nursing orderlies). These men return to their regiments and become sources of infection.

The observations showed conclusively that when individuals harbouring the bacillus have to deal with food supplies they are capable of infecting the food and to produce epidemics.

The General Conclusions arrived at in this Memoir are of great importance, and *mutatis mutandis*, apply equally to cases of " Carrier " Typhoids in civil life.

> " 1. ENTERIC CONVALESCENTS.—Our investigations have shown that a certain percentage of cases of Enteric fever remain infective for a long time. In order to detect such cases the urine and fæces of all convalescents should be submitted to a careful daily bacteriological examination for a prolonged period. By this means it will be possible to state when men are free from bacilli and safe to return to their units."

> " 2. Enteric Orderlies.—A number of men whilst in attendance on Enteric fever cases contract the disease and some of them so slightly that they do not report sick. A certain number of these orderlies become " Chronic bacilli carriers " and under the present system, at the end of the period of duty as Enteric nursing orderlies, these men return to their units and so take fresh foci of infection to their various stations. By creating a special permanent body of trained men to nurse Enteric fever patients a considerable danger as regards the spread of Enteric fever would be removed."
>
> " 3. Men dealing with Food Supplies, e.g., in Cook-houses, Dairies, Ærated Water and Ice Factories, etc.—As we have seen, epidemics of Enteric Fever can be carried by men dealing with food supply while they are excreting the germ of the disease. Men employed in such work should be carefully selected by bacteriological examination."
>
> " Finally.—The problem of the prevention of Enteric fever amongst the British troops in India, is the detection and isolation of the individual harbouring the bacillus typhosus."

I have quoted this authoritative memoir at some length because it confirms, with no uncertain voice, the results of our independent local examination into similar conditions occurring in civil life, and lends support to the action of the Health Committee in undertaking investigation into the pathology and epidemiology of the " Typhoid Carrier " question.

A tendency has been shown, in recent discussions upon the causation of Typhoid fever outbreaks, to ridicule the " carrier " as an " effective " factor in promoting the occurrence of epidemics. The warning is a timely one perhaps, not to ascribe too prominent a position in the epidemiology of this disease to the occasional victims of this unfortunate condition.

We all recognise, for example, that the most widespread epidemics of Typhoid fever may owe their diffusion to water carriage or, as apparently in the case of Belfast, to shell-fish enjoying unusually marked opportunity of pollution and very generally used for food, and that the common fly may take its ignoble share in the distribution of this disease, especially where midden privies or similar conditions allow of the exposure of specifically infected excreta ; and we make no attempt to read into such epidemic outbursts any predominant causal influence due to " Carriers." But, though " carriers " are limited in their power for evil by circumstances, are only intermittently " infective," and need close dealing with food to become " effective " agents in disease distribution, it cannot seriously be denied that, given favourable conditions, they have been definitely proved to initiate sufficiently serious and sometimes fatal outbreaks.

These outbreaks are generally, by the conditions involved, either Institution outbreaks or Family outbreaks and the necessary condition is " food preparation." There is thus a strict limitation to their power for ill. The important point is the recognition of the fact that prolongation of the life of the Bacillus Typhosus does not necessarily, nor perhaps ordinarily, take place outside the body in sewers, soil, or other organically polluted material ; but the bacillus may and does obtain an optimum chance of existence most favourable to the continuance of its parasitic life, actually within the human body.

There is no need to labour the point, but it is obvious that the occasional persistence of living reservoirs of the Bacillus Typhosus amongst populations is a factor to be reckoned with in regard to the endemicity of Typhoid fever. It has been shown that, under certain conditions, limited outbreaks can be and have been causally related to such carriers ; and the possibility of these sources of infection leading to yet larger prevalence by implication of water supplies or other capable distributors, has to be borne in mind.

The presence of a potential source of constantly present danger has been demonstrated, it remains to define the extent and limits of the danger by careful and painstaking investigation.

Diphtheria—Membranous Croup.

During the 53 weeks of 1908, 911 cases were notified as Diphtheria, and 13 as Membranous Croup—a total of 924 under these two headings.

The number of deaths returned as due to Diphtheria was 67, and to Membranous Croup 2, or a total of 69 under the two headings, giving a case mortality from these causes of 7·4 per cent. The case mortality observed in 1894 was 39 per cent. ; much of this difference is apparent only, as large numbers of very mild cases, which in 1894 would have escaped observation, are sought for now by systematic bacteriological examination ; this causes the figures as to case-mortality to be somewhat misleading.

The 69 deaths from Diphtheria and Membranous Croup correspond to a death-rate from these causes of 18 per 100,000 living, compared with a rate of 18 in 1907, 22 in 1906, 16 in 1905, of 30 in 1904, of 35 in 1903, and of 54 in 1902.

The Diphtheria rate (including Membranous Croup) for the 76 great towns in 1908 was 16.

Diphtheria (including Membranous Croup) for 19 years.

Years	1 Cases Notified	2 Attacks per 100,000 Living	3 Deaths	4 Deaths per 100,000 Living	5 Case Mortality per Cent.
1890*2	56	25	16	7	28·5
1891	70	31	16	7	22·8
1892	106	47	38	16	35·8
1893	141	59	53	23	37·5
1894	128	56	50	22	39·0
1895	165	69	34	14	20·6
1896	258	111	38	16	14·7
1897	205	88	36	15	24·7
1898*	217	68	44	13	20·2
1899	215	67	33	10	15·3
1900	512	157	103	31	21·1
1901	908	275	124	37	13·6
1902	1,109	325	189	51	17·0
1903	1,134	331	119	35	10·4
1904‡	1,051	305	105	30	9·9
1905	1,021	281	59	16	5·7
1906	839	231	82	2	9·7
1907	926	25	68	18	7·3
1908	924	243	69	18	7·4

* Enlarged City. ‡ City again extended in 1904.

*2 Notification commenced February 12th, 1890.

Diphtheria—Showing incidence of Cases and Deaths on the Sub-Districts of Bristol, 1908.

Incidence Rate per 100,000 Population.	Cases.	REGISTRATION SUB-DISTRICT. — POPULATION.	Deaths.	Death Rate per 100,000 Population.
176·0	84	Ashley 46,802	8	16·7
387·9	277	Bedminster 70,055	12	16·8
158·1	63	Bristol Central 39,087	6	15·0
156·4	71	Clifton 44,539	3	6·6
142·6	25	Knowle 17,191	2	11·4
252·6	179	S. George 69,511	18	25·4
171·4	84	S. Philip 48,152	7	14·2
317·3	85	Stapleton 26,252	5	18·6
184·0	21	Westbury-on-Trym 11,196	2	17·5
—	27	Arising in Municipal Institutions	—	—
—	8	Not belonging to Boro'	6	—
243·2	924	**City** 372,785	69	18·1

Diphtheria—Notifications in each Quarter in the Sub-Districts of Bristol, 1908.

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Year.
Ashley	13	21	18	32	84
Bedminster	72	41	65	99	277
Bristol Central	13	13	13	24	63
Clifton	15	16	13	27	71
Knowle	10	3	6	6	25
S. George	31	42	59	47	179
S. Philip	16	17	23	28	84
Stapleton	22	23	17	23	85
Westbury-on-Trym ..	8	5	2	6	21
Arising in Municipal Institutions	11	7	5	4	27
Not belonging to Boro'	3	3	1	1	8
CITY	214	191	222	297	924

Diphtheria in Bristol since 1900.

(Full details are given in the Annual Report for each year).

1900 Virulent diphtheria introduced into Bristol south (Bedminster). Scattered, no special school incidence, extended to Totterdown, prevalence declining at end of year.

1901 In March, a school outbreak at Totterdown, controlled by special medical aid in school inspection, culture-taking from contacts, isolation, and control of school attendance.

Redcliff invaded, apparently from Bedminster, school outbreak controlled with some difficulty. Hotwells invaded. Avonmouth invaded.

1902 Early in February a sharp school invasion began, special medical assistance succeeded in promptly arresting the outbreak.

S. George invaded in same month, the Two Mile Hill School, with 1,100 scholars implicated. The school outbreak was got in hand, but the disease spread in the district. The medical assistance afforded was intermittent, and in each interval the disease gained headway, out-patient treatment was affored for suspicious (Hofmann) cases, in addition to Hospital isolation for virulent cases.

1903 In the early part of the year the disease fluctuated between S. George and Bedminster, special medical aid, and out-patient treatment was afforded in both districts, and continued up to June, improvement followed.

In March a visitor started a fresh outbreak at Avonmouth, soon controlled. In August a visitor from London started an outbreak in a Charitable Institution, which caused trouble for some weeks.

In November the Chester Park Council Schools at Fishponds (Stapleton), were invaded; the school outbreak subsided, home infection by undetected cases kept the disease alive in the district, and it gained considerable hold.

1904 Continuance of the Fishponds outbreak up to the middle of the year, a special Report was presented in June: out-patient treatment was established as in the other districts, and through the autumn the outbreak declined. This district was more difficult to work than any other of the invaded areas, considerable opposition was offered, in consequence of which the district suffered heavily.

1905 Some continuance of Diphtheria was noted in Fishponds. Objection to throat or nose examination continued, in one case where this was refused the whole family subsequently suffered. But medical inspection was continued as efficiently as possible, and by the end of February considerable improvement had resulted.
In March, recrudescence occurred at Avonmouth in houses affected previously in 1900-01, but was soon controlled.

In September, Diphtheria appeared in two Horfield Schools, medical examination was instituted, the district generally co-operated in the measures, and in a few weeks the outbreak was under control.

1906 In this year no special school infection occurred, and the total number of known cases declined. The type of Diphtheria was, however, somewhat more severe, and the deaths exceeded those in 1905, but were considerably less than those recorded in the previous five years.

1907 Several school outbreaks occurred during the year, necessitating special medical examination of school classes. The districts affected were :—In February—Bedminster, Stapleton and Fishponds. In May—Baptist Mills. In November—Bedminster.

In the May outbreak, 12·5 per cent. of the 190 scholars were discovered on examination, to be in an infectious condition, and the infection, which had been going on for some time, readily yielded to direct action.

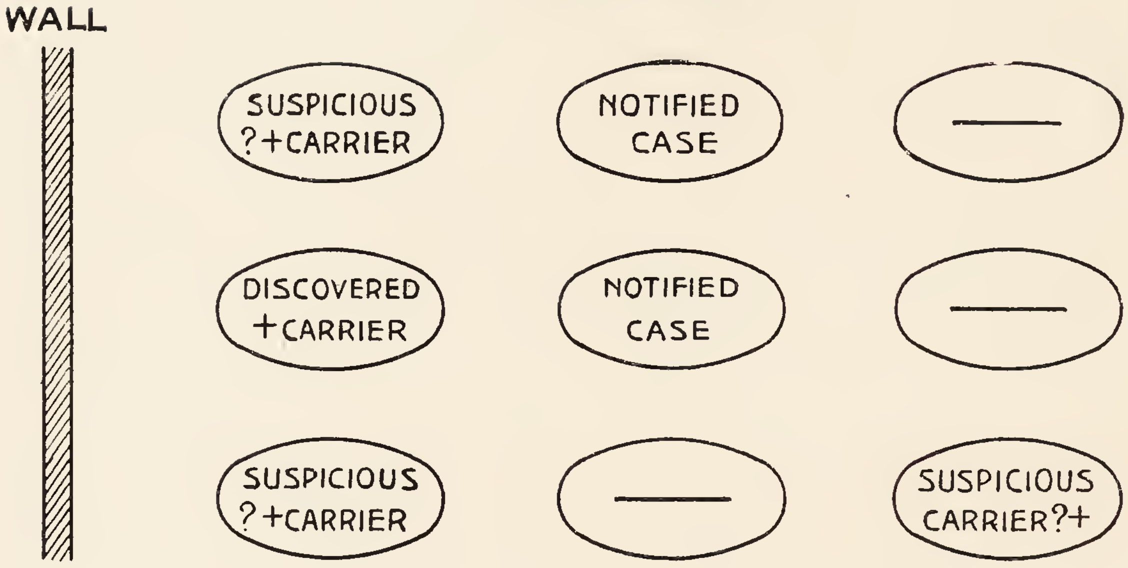
In the November outbreak, a badly housed Infants' Department in an indifferently ventilated chapel, with almost continuous occupation with school meetings and services, showed on examination 11 positive cases, and resulted in the discovery of a twelfth case at one of the homes, attending another school. Six other contacts at home also required attention.

Diphtheria in 1908.

Luckwell Lane School.—Shortly before the summer holidays six cases occurred among the scholars at this large mixed school (accommodation for 1280), and, during the holiday, cases continued to occur among children who were attendants at the school. Upon its re-opening the disease showed further signs of slow spread. A special examination of the children in school was therefore instituted, the first result being the detection of 6, out of 8 brothers and sisters of previously notified cases, who were carrying diphtheria bacilli in nose or throat ; the other two were found to be harbouring Diphtheroid bacilli. These sources of infection spread about the various departments might very well account for the scattered occurrence of the more recent marked cases. They were excluded, most removed to Hospital, and the others placed under medical treatment. Attention was next paid to those sitting adjacent to the recent cases in the infant department, and out of the first 38 from whom cultures were taken no less than 20 were found to be carriers (15 in throat, 4 in nose, and one in both throat and nose), while 12 were harbouring suspicious organisms. Of these 20 carriers, some were removed to Hospital and the rest were treated at home. A selection of the worst cases of those who were carrying the suspicious organisms was made and they were treated as out-patients at Clift House Hospital, which was opened for the purpose.

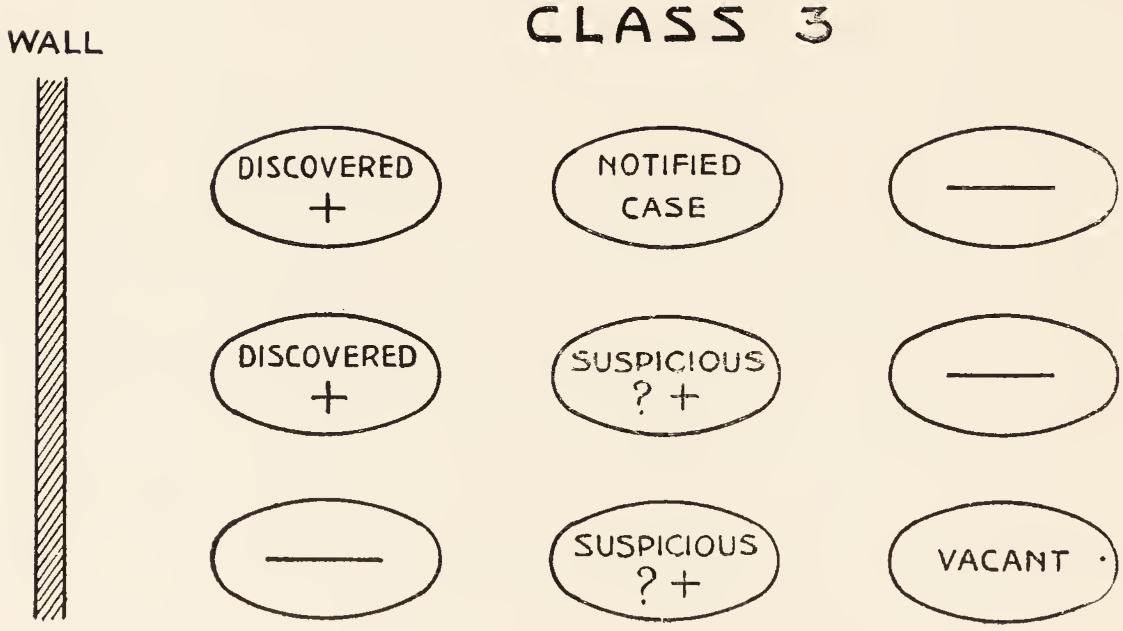
As showing the effect of propinquity the following diagrams of the parts of two classes in the infant department are interesting.

CLASS 7.



SUSPICIOUS ?+CARRIER	NOTIFIED CASE	—
DISCOVERED +CARRIER	NOTIFIED CASE	—
SUSPICIOUS ?+CARRIER	—	SUSPICIOUS CARRIER?+

CLASS 3



DISCOVERED +	NOTIFIED CASE	—
DISCOVERED +	SUSPICIOUS ? +	—
—	SUSPICIOUS ? +	VACANT

It is curious that all the positive carriers round these notified cases were on the right and against the wall, and that the children to the left practically escaped. Perhaps it is due to the fact that in writing children turn to the right, and probably the wall close to the right interfered with free ventilation.

The steps above taken practically freed the upper school at once, only one case occurring there afterwards till special examination was discontinued. The infant department was kept under observation, as one or two fresh cases arose at long intervals, till December 11th when the special school incidence appeared to have ceased, and since that time till the end of March, 1909, there have only been three cases among the scholars.

SUMMARY.

School accommodation for 1,280. Infant department chiefly affected.

Number of Children examined	..	146
,, ,, cultured	..	109

Of these 109, four showed typical Klebs Löffler in large quantity, 24 in small quantity; in 68 the organisms found were "suspicious," and in 13 only were negative.

Of the 28 showing Klebs Löffler :—16 were removed to Hospital, 12 remained at home under medical supervision

Of the 68 suspicious cases, a list of 24 of the most urgent was prepared, and these children were treated as out-patients at Clift House till cured. One of them shortly after it commenced attendance was notified as Clinical Diphtheria.

Comparative Table showing Diphtheria Mortality.

(*From the Registrar General's Annual Summary.*)

	Death Rates from Diphtheria per 100,000 Living.										
	10 years' Average, 1890-99,	1898-07	1900	1901	1902	1903	1904	1905	1906	1907	1908
*76 Towns ..	—	†20	—	—	26	20	19	16	19	17	16
33 Towns ..	33	—	35	30	—	—	—	—	—	—	—
London	49	25	34	29	25	16	16	12	15	16	15
West Ham	51	44	50	62	46	26	15	26	29	24	17
Croydon	29	18	18	16	21	12	17	16	27	27	24
Brighton	20	27	58	51	28	26	12	4	9	12	7
Portsmouth ..	23	39	53	37	34	39	36	34	29	29	23
Plymouth	13	13	11	11	13	13	12	15	18	13	12
Bristol	**14**	**27**	**31**	**37**	**54**	**35**	**30**	**16**	**21**	**17**	**17**
Cardiff	40	34	42	46	52	20	18	13	7	12	11
Swansea	33	48	58	18	25	22	25	20	7	12	4
Wolverhampton	35	20	10	12	20	9	18	18	23	26	30
Birmingham ..	24	21	14	16	24	26	24	17	18	18	19
Norwich	21	20	10	26	9	11	7	20	25	38	21
Leicester	27	43	151	71	15	13	3	5	13	7	3
Nottingham ..	8	17	12	12	12	26	28	19	16	16	11
Derby	11	19	6	19	10	3	25	19	50	42	28
Birkenhead	23	23	9	25	24	10	24	28	23	20	11
Liverpool	20	24	26	27	30	23	27	21	20	15	17
Bolton	10	14	12	16	25	21	16	10	12	12	10
Manchester	21	19	18	24	21	24	17	20	19	16	18
Salford	34	38	41	63	33	38	49	36	39	31	51
Oldham	15	18	13	9	33	39	25	9	12	13	15
Burnley	26	25	19	40	45	20	12	19	14	14	12
Blackburn	12	30	65	49	17	20	8	24	19	13	9
Preston	12	20	38	15	24	18	20	16	14	10	9
Huddersfield ..	13	10	2	6	13	15	15	11	14	8	9
Halifax	15	18	13	17	8	9	16	26	39	26	11
Bradford	8	21	11	11	30	19	57	28	21	15	14
Leeds	23	32	59	40	21	15	10	10	18	14	9
Sheffield	29	43	126	64	27	9	11	13	19	12	8
Hull	12	24	8	17	35	31	25	30	52	25	18
Sunderland	7	17	15	20	10	21	18	20	22	27	17
Gateshead	13	14	5	11	10	10	12	16	28	25	20
Newcastle	18	17	14	15	10	17	22	19	24	19	12

* The Registrar General now gives the rates for 76 of the large towns, and these rates are no longer comparable with the previously given rates for the 33 largest towns.

† Average rates for the *Six* years 1902–7 only.

The Health Committee during the year have supplied 240,000 units of Diphtheria antitoxin free to Medical Practitioners upon application, for 55 patients whose parents were certified as unable to afford to pay for this.

Laboratory Examinations in Diphtheria and Enteric Fever.

	Diphtheria.	Enteric Fever.	Total.
1895	87	—	87
1896	206	—	206
1897*	379	254	633
1898	390	127	517
1899	485	290	775
1900	915	452	1,367
1901	2,527	425	2,952
1902	3,771	420	4,191
1903	5 545	240	5,785
1904*²	6,858	308	7,166
1905	6,469	161	6,630
1906	4,738	219	4,957
1907	6,549	166	6,715
1908	5,003	172	5,175

* City enlarged in November, 1897.
*² City enlarged in October, 1904.

In November, 1902, this work, which had for seven years been voluntarily undertaken by the Medical Officer of Health, was transferred to University College, Bristol; and in 1906 was transferred to the City Analyst.

Cholera—Choleraic Diarrhœa—Plague.

No suspicious cases were introduced.

Diarrhœa—Infantile Diarrhœa.

The number of deaths returned as due to Diarrhœal diseases during the year was 154 compared with 133, 213, 169, 206, 107, 165 and 345, fatal cases recorded in the previous seven years. Of the 154 deaths 128 occurred in children under 1 year of age, 20 at ages 1 to 5, two at ages 25 to 65, and four in persons aged 65 and upwards. These deaths give a Diarrhœal death-rate of 0·40 per 1,000 living.

Comparative Table showing Diarrhœa Mortality.

(*From the Registrar General's Annual Summary*).

	Death Rates from Diarrhœa per 100,000 living.									
	10 years' Average		1901	1902	1903	1904	1905	1906	1907	1908
	1890-99.	1898-1907.								
*76 Towns.	—	‡81	—	54	71	120	83	116	40	65
33 Towns.	96	—	123	—	—	—	—	—	—	—
London	74	77	87	54	64	104	73	94	32	53
West Ham...	89	149	195	85	111	208	159	188	66	100
Croydon	59	65	92	49	28	64	33	96	42	31
Brighton	81	69	89	39	40	43	37	55	33	22
Portsmouth .	95	103	165	80	59	108	86	111	29	26
Plymouth ...	73	84	82	45	49	102	80	72	34	48
Bristol	**63**	**56**	**45**	**38**	**28**	**51**	**36**	**54**	**32**	**34**
Cardiff	87	60	44	27	46	72	32	79	34	63
Swansea	42	60	44	49	48	77	46	82	52	78
Wolv'rh'mpt'n	137	123	116	78	90	165	128	132	49	44
Birmingham	123	122	147	71	111	176	83	158	43	80
Norwich	100	112	124	63	75	118	119	155	46	39
Leicester	152	107	132	59	60	131	93	113	31	50
Nottingham .	111	113	151	72	68	137	76	152	63	64
Derby	76	62	97	42	38	68	61	53	20	34
Birkenhead .	83	107	140	60	118	154	101	175	31	76
Liverpool ...	132	149	195	94	98	252	135	179	73	84
Bolton	138	110	141	39	90	94	105	115	41	85
Manchester .	129	131	185	53	89	137	115	153	59	92
Salford......	154	141	191	64	98	166	121	144	44	98
Oldham	70	76	121	31	42	91	72	119	53	114
Burnley	134	155	183	59	140	201	137	201	69	159
Blackburn ..	131	91	158	40	52	81	64	107	28	85
Preston	211	160	182	144	103	143	132	196	54	97
Huddersfield	41	58	90	19	26	51	44	90	22	54
Halifax	32	34	47	21	16	34	25	30	18	16
Bradford ...	91	65	89	18	51	83	50	93	17	65
Leeds	109	91	144	60	63	99	79	97	38	67
Sheffield	135	145	211	56	127	135	152	171	99	87
Hull	145	138	180	41	125	208	128	161	37	136
Sunderland .	123	104	178	49	60	109	83	108	45	66
Gateshead ..	107	113	255	37	91	113	68	162	37	98
Newcastle-on-Tyne	73	69	124	26	58	51	58	103	14	46

* The Registrar General now gives the rates for 76 of the large towns, and these rates are no longer comparable with the previously given rates for the 33 largest towns.

‡ Average rates for the *six* years 1902-7 only

Erysipelas.

During the year 1908, 223 cases of Erysipelas were notified, and 6 deaths were returned, compared with 244 cases and ten deaths in 1907.

Puerperal Fever.

Twenty-two cases of Puerperal Fever were notified, compared with 36 last year. Seven cases proved fatal, compared with 23 in 1900, 17 in 1901, 17 in 1902, 14 in 1903, 16 in 1904, 6 in 1905, 14 in 1906, and 11 in 1907.

Typhus Fever.

No case of Typhus Fever was notified in the City during the year. This disease disappeared when Registration of Common Lodging Houses and control of gross insanitary conditions were taken in hand in the sixties and seventies of last century

Measles.

The deaths from Measles in the City in 1908 numbered 96 compared with 36 in 1907, 140 in 1906, 180 in 1905, 94 in 1904, 11 in 1903, 411 in 1902, with 7 in 1901, with 200 in 1900, 38 in 1899, 309 in 1898, 57 in 1897, with 143 in 1896, 8 in 1895, 116 in 1894, 25 in 1893, 105 in 1892, and 239 in 1891. These fluctuations are characteristic of Measles prevalence in large centres of population.

Of the 96 deaths, 93 occurred in children under 5, and three between 5 and 15.

In the first quarter 31 deaths occurred, 34 in the second, 20 in the third, and 11 in the fourth quarter.

The relative fatality for a period of 10 years in the City of Bristol from various diseases is here shown, and Measles is found to occupy a most prominent place amongst the causes of school mortality.

	1899–1908 Deaths.
Diarrhœa	1737
Measles	1213
Whooping Cough	1029
Diphtheria	952
Enteric Fever	283
Scarlet Fever	341
Small-pox	7
Typhus Fever	0

Whooping Cough.

The deaths from Whooping Cough in the City numbered 128 compared with 35 in1907, 102 in 1906, 123 in 1905, 110 in 1904, 65 in 1903, 105 in 1902, 189 in 1901, 54 in 1900, 118 in 1899, 110 in 1898, 118 in 1897, 64 in 1896, 45 in 1895, 177 in 1894, 80 in 1893, 154 in 1892, 53 in 1891, and 201 in 1890.

Sixty-four of the deaths ocurred in children under one, 60 at the ages one to five, and four at ages five to fifteen.

In the first quarter of the year 38 deaths occurred, 51 in the second, 31 in the third, and eight in the last quarter of the year.

The disease was most fatal in S. George (29), Bedminster (27), S. Philip (22), and Ashley (18).

The mortality in this disease is largely due, as in the case of Measles, to the want of care exercised during the course of the illness, to avoid exposure to inclement weather. It bears a similar relation to school attendance as in the case of Measles, and is very fatal at ages under five.

Influenza.

This disease was credited with 73 deaths during 1908, compared with 55 in 1907, 47 in 1906, 54 in 1905, 27 in 1904, 33 in 1903, 56 in 1902, 65 in 1901, 53 in 1900, 119 in 1899, 57 in 1898, 40 in 1897, 19 in 1896, 95 in 1895, 26 in 1894, 68 in 1893 and 45 deaths during 1892.

Influenza was chiefly returned as a cause of death during the first quarter of the year, and the figures for the four quarters are 53, 12, 0, and 8 respectively.

Cerebro-Spinal Fever.

One death was returned as due to this disease during the year, in a child of four years, living at Fishponds.

TUBERCULOSIS.

Phthisis (Pulmonary Consumption).

The fatality of Pulmonary Phthisis, and of other Tubercular Diseases, in comparison with that from the seven principal zymotic diseases is shown here for fifteen years.

	1894	1895	1896	1897*	1898	1899	1900	1901	1902	1903	1904†	1905	1906	1907	1908
Phthisis	332	317	370	302	393	430	415	401	415	366	413	407	404	384	397
Other Tubercular Diseases ...	136	136	129	136	178	180	145	139	162	154	144	152	137	114	140
Seven Principal Zymotics ...	457	268	435	430	851	582	606	530	942	375	578	583	585	314	467

* City enlarged in November, 1897.

† City enlarged in October, 1904.

In 1899 a systematic examination of the milk from all farms supplying the City was carried out by Professor Delépine, of Manchester. Out of 74 samples examined, only 4 showed the presence of Tuberculosis. The samples were taken from the milk as brought into the City for delivery.

All meat and milk contracts for the City and Port Hospitals are framed upon conditions protective against Tuberculosis.

The Bristol City Council, on the recommendation of the Health Committee, has made the following arrangements for dealing with consumption in the City :—

Winsley Sanatorium. They have contributed a sum of £5,000 towards the erection and equipment of the Winsley Sanatorium, and a further sum of £1,300 annually towards the maintenance of 20 beds, to be reserved at their disposal (Resolution of Council of 13th May, 1902, and 8th Dec., 1903). At a Meeting of the Council, on 26th March, 1907, it was resolved that an additional capital sum of £1,000 be contributed, together with an additional annual sum of £100. The Sanatorium was opened in the early part of December, 1904. The first Bristol case was admitted on 27th February, 1905.

The following particulars have been kindly supplied by the Clerk to the Guardians, with regard to *the arrangements made by the Guardians* for the care and treatment of cases of Phthisis.

At Southmead Workhouse, Westbury-on-Trym. A temporary building of wood and iron, acquired by the late Barton Regis Rural District Council as an Isolation Hospital for Infectious cases, has been set apart for the adult male cases. This building accommodates 24 patients, and has by structural alterations been made very suitable for the open-air treatment. It is quite isolated and surrounded by open land.

In the portion erected as an Infirmary, a permanent building of stone, accommodation is provided for women and children. This portion contains about 17 beds, and alterations have been made so as to make it as suitable as possible for the open-air treatment.

The foregoing accommodation only provides for a somewhat limited number of cases of Phthisis that become chargeable to the Guardians: cases that are believed to be capable of improvement by the open-air treatment being sent to Southmead.

At Stapleton and Eastville Workhouses. In addition, the Guardians have a number of more chronic cases at these Workhouses, where they are kept as far as possible separate from the other inmates requiring sick treatment.

Notification.—In September, 1903, the Council approved of the initiation of a voluntary system of notification of Phthisis. Leaflets containing "Precautions against Consumption" were distributed through the City, first by the S. John's Ambulance Brigade, later by the Health Committee, and Sputum Flasks are supplied to deserving patients unable to afford the purchase; disinfecting solution for use in the flasks is also gratuitously supplied.

Year	1905*	1906	1907
Males	196	347	291
Females	134	356	251
Total Notified ..	330	703	542

* Voluntary Notifications of Phthisis commenced September, 1905.

Enquiries and Disinfection.—Each week the deaths from "Consumption" are singled out from the death returns and entered upon special enquiry cards. The District Inspectors visit, make enquiries in these, as well as in all notified cases not specially exempted, and secure disinfection of the rooms or premises, and of any articles that need it.

Examination of Phthisical Sputum.—The Bacteriological examination of Phthisical Sputum is provided free of cost for Medical Practitioners in regard to City cases. 616 examinations were made during 1908, of which 174 gave positive results.

Notification 1908.

TABLE I. (Cases).

516 Cases were notified during the year 1908, 275 Males, and 241 Females.

SOURCE OF NOTIFICATION.

483 Cases were living at Home.
12 ,, ,, Stapleton Workhouse.
1 ,, ,, Eastville Workhouse.
6 ,, ,, Asylum.
8 ,, ,, Common and Institution Lodging Houses.
6 ,, ,, Other Institutions.

516 Total number notified.

In 277 Cases, Disease was reported as Phthisis of Lungs.
,, 135 ,, ,, ,, limited to Right Lung.
,, 104 ,, ,, ,, limited to Left Lung.

239 Deaths took place in 1908 of notified cases :—
11 of Cases notified in 1905.
36 of Cases notified in 1906.
70 of Cases notified in 1907.
122 of Cases notified in 1908.

TABLE II. (Cases).

History Table showing Relatives Affected.

130 Cases, History of Phthisis in Family.

	Father.	Mother.	Husband.	Wife.	Brother.	Sister.	Son.	Daughter.	Uncle.	Aunt.	G.Father.	G.Mother.	Cousins.
Male Cases 56	18	18		3	22	9			5	4	3		1
Female Cases 74	24	15	8		16	13	2	3	8	3	2	3	3

In 53 Cases, history shows more than 2 Persons affected in Family.

TABLE III. (Cases).

Occupation of Notified Cases.

Occupation........	Male.	Female	Total.
Auctioneer	1	—	1
Barber	1	—	1
Basket Maker	1	—	1
Billiard Marker	1	—	1
Boot, Shoe, Leather	24	3	27
Brick Maker	1	—	1
Brush Maker	1	—	1
Builders, Masons, Quarrymen	6	—	6
Chemist	1	—	1
Clerks	16	—	16
Cocoa	1	7	8
Coopers	2	—	2
Cork Sorter	—	1	1
Cotton, Clothing, Tailoring	10	11	21
Dentist	1	—	1
Domestics	—	27	27
Drivers, etc.	13	—	13
Engineering—Iron Workers, etc.	16	—	16
Florists, Gardeners	2	—	2
Gas Worker	1	—	1
Gelatine Worker	—	1	1
Hawkers	2	1	3
Home	2	8	10
Housewives	—	118	118
Ice Cream Vendor	1	—	1
Institutions	10	9	19
Insurance Agents, Canvassers	2	—	2
Joiners, Carpenters, Cabinet Makers	7	—	7
Labourers	56	—	56
Lamplighters	2	—	2
Laundry	—	3	3
Miners	5	—	5
No occupation	13	11	24
Painters	6	—	6
Paper, Printing, Stationery	9	11	20
Photographer	1	—	1
Plasterers	2	—	2
Post Office	2	—	2
Pottery Worker	1	—	1
Publicans, Barmen	6	—	6
Rag Pickers	1	1	2
Railway Workers	4	—	4
Reservists—Army, Navy	10	—	10
Schools	10	10	20
Seamen	2	—	2
Shop Assistants	5	4	9
Stokers	2	—	2
Teachers	1	2	3
Tobacco, Cigar, Cigarette	4	12	16
Traveller	1	—	1
Unknown	—	1	1
Upholsterer	1	—	1
Waiters	2	—	2
Warehousemen	6	—	6
	275	241	516

TABLE IV. (Cases).

Table Showing number of Persons in Affected House.

Persons in House	2	3	4	5	6	7	8	9	10	11	12	13	14
Cases ..	16	43	106	92	70	60	44	25	15	5	3	3	1 = 483

Institutions .. 33

516

FAMILIES IN HOUSE.

Families in House	1	2	3	4	5
Cases	335	132	13	2	1 = 483

Institutions .. 33

516

ROOMS IN HOUSE.

Rooms in House	2	3	4	5	6	7	8	9	10
Cases	2	16	37	82	259	25	41	9	12 = 483

Institutions .. 33

516

CONDITION OF HOUSE AS TO " CLEANLINESS," " DAMPNESS, VENTILATION & REPAIR," & " DRAINAGE."

	Reported Good.	Reported Fair.	Reported Bad.	Institutions.	Totals.
Cleanliness	138	319	26	33	516
Dampness, Ventilation and Repair	102	363	18	33	516
Drainage	164	304	15	33	516

38 Notices were issued.

Houses classed as " good " or " fair," may be deemed satisfactory ; no action is required in either group.

OVERCROWDING.

Case No. 1639. 10 persons occupied 3 rooms.
Case No. 1865. 13 persons occupied 5 rooms.

TABLE V. (Cases).

Table showing number of persons in, and number of rooms occupied by patient's family.

	Persons in Family	1	2	3	4	5	6	7	8	9	10	11	12	13	
Rooms per Family.	1	35	12	2	.	1	.	.	.	.	.	.	.	.	50
	2	11	18	13	1	3	1	2	.	.	.	.	.	.	49
	3	.	16	21	15	5	4	2	1	.	.	1	.	.	65
	4	.	10	13	6	5	5	3	4	2	2	.	.	.	50
	5	.	4	8	15	12	6	9	8	.	1	.	.	1	64
	6	.	9	17	47	26	20	23	10	8	2	1	.	.	163
	7	.	.	2	5	5	.	1	1	.	.	.	.	.	14
	8	.	.	2	4	9	2	.	2	1	1	.	.	.	21
	9	.	.	.	.	.	.	1	.	.	.	.	.	.	1
	10	.	.	1	.	.	3	1	.	.	1	.	.	.	6

	=483
Institutions	33
Cases notified during 1908 ..	516

TABLE VI. (Cases).

Common and Institution Lodging House Cases.

Notified in Common Lodging Houses ..	7	Cases
Notified in Institution Lodging Houses	1	,,
Total number notified.........	8	,,
Admitted to Stapleton Workhouse	6	Cases
Admitted to Southmead Workhouse ...	1	,,
Remaining in Common Lodging Houses ..	1	,,
	8	

Disinfection was carried out in 5 cases. The average age of these cases was 36 years.

Out-workers.

One Male and Three Female Out-workers were notified :—

Age—Over 18 years	4	Cases
Total number	4	,,

These four cases were engaged in Tailoring.

Milk.

432 Cases—Name of milkman reported.
74 ,, Obtained from casual sellers.
10 ,, Used Condensed Milk.
116 ,, Milk was boiled before use.

Animals Kept.

13 Cases—Kept Animals or domestic pets

Disinfection, etc.

33 Cases—Clothing was disinfected.
119 ,, Bedding was disinfected.
211 ,, Rooms were disinfected.
272 ,, Refused. In many cases the people would like disinfection to be carried out but could not owing to state of health of patient.
207 ,, Laundry, etc., was done at home.

Sputum Flasks, etc.

35 Sputum Flasks were supplied.
499 Bottles of Disinfectant Solution supplied.

Schools.

20 Cases attended the Elementary Day Schools.

TABLE VII. (DEATHS).

Enquiry into 384 Deaths returned from Phthisis

296 Cases died at Home
33 ,, ,, Stapleton Workhouse.
15 ,, ,, Eastville Workhouse.
28 ,, ,, Asylum.
5 ,, ,, Southmead Workhouse
20 ,, ,, Other Institutions.

397

Year of Notification of 397 Fatal Cases :—

11 Deaths occurred amongst cases notified in 1905
36 Deaths occurred amongst cases notified in 1906
70 Deaths occurred amongst cases notified in 1907
122 Deaths occurred amongst cases notified in 1908
158 Deaths occurred amongst cases not notified.

397

TABLE VIII. (DEATHS).

Showing Occupations of 397 Fatal Cases.

Occupation.	Males.	Females.	Total
Bakers	3	—	3
Boots, Shoes, Leather Workers	15	—	15
Brush Makers	2	—	2
Butchers	3	—	3
Canvassers, Agents	2	—	2
Clerks	17	2	19
Clothing	11	21	32
Cocoa	—	5	5
Cooper	1	—	1
Dentist	1	—	1
Domestic Servants	—	15	15
Drivers of Horses	10	—	10
Farrier	1	—	1
Fireman	1	—	1
Gardener	1	—	1
Gas Worker	1	—	1
Gymnast	1	—	1
Hawkers	6	1	7
Home	—	8	8
Housewives	—	94	94
Iron Workers, Engineers	12	—	12
Joiners, Carpenters, etc.	2	—	2
Labourers	40	—	40
Lamplighters	3	—	3
Laundry Workers	—	2	2
Lawyer	1	—	1
Maltster	1	—	1
Masons	6	—	6
Milk Sellers	2	—	2
Miners—Pit Labourers	3	—	3
Mustard Works	1	—	1
No Occupation	12	19	31
Navy, Army, Reservists	3	—	3
Painters, Decorators, French Polishers	6	—	6
Paper, Printing, Stationery	6	6	12
Photographer	3	—	3
Police	1	—	1
Post Office	2	—	2
Publicans, Barmen	3	—	3
Potter	1	—	1
Rag Sorter	—	1	1
Railwaymen	2	—	2
Schools	4	7	11
Seamen	3	—	3
Shop Assistants	3	5	8
Stokers	2	—	2
Teachers	2	1	3
Tobacco, Cigars, Cigarettes	2	6	8
Waiter	1	—	1
Warehouse	1	—	1
	204	193	397

TABLE IX. (DEATHS).

Housing—Particulars of 397 Fatal Cases.

PERSONS IN AFFECTED HOUSE.

Persons in House	2	3	4	5	6	7	8	9	10	11	12	14	13
Cases	12	31	65	53	38	34	26	20	9	3	3	1	1 = 296

Institutions..........101

397

FAMILIES IN HOUSE.

Families in House	1	2	3	4	5	
Cases	217	67	8	3	1	= 296

Institutions 101

397

CONDITION OF HOUSE AS TO "CLEANLINESS," "DAMPNESS, VENTILATION AND REPAIR," AND "DRAINAGE."

	Reported Good.	Reported Fairly Good.	Reported Bad.	Total.
Cleanliness	82	202	12	296
Dampness, Ventilation, and Repair	57	228	11	296
Drainage.............	99	187	10	= 296

Institutions 101

397

Twenty-six notices were issued.

TABLE X. (DEATHS).

Table showing number of persons in, and number of rooms occupied by Patient's Family.

	Persons in Family.	1	2	3	4	5	6	7	8	9	10	11	12	
Rooms per Family.	1	25	8	1	.	.	.	.	.	.	.	.	.	34
	2	4	15	9	10	1	.	.	.	.	.	.	.	39
	3	.	5	5	8	4	6	.	.	.	.	.	.	28
	4	.	6	5	7	7	5	1	6	1	.	.	.	38
	5	.	2	6	6	4	4	6	2	.	1	.	.	31
	6	.	3	13	23	20	9	13	5	7	1	2	.	96
	7	.	2	2	3	3	3	2	.	1	.	.	.	16
	8	.	1	1	1	4	3	1	.	.	.	.	.	11
	9	.	.	.	2	.	.	.	.	.	1	.	.	3

	= 296
Institutions	101
Deaths during year 1908 ...	397

TABLE XI. (DEATHS).

Milk.

233	Cases—	Name of milkman reported.
52	,,	Obtained from casual sellers.
11	,,	Used condensed milk.
94	,,	Milk was boiled before use.

Animals Kept.

20 Cases—Kept Animals or Domestic Pets.

Disinfection, etc.

32	Cases—	Clothing was Disinfected.
136	,,	Bedding was Disinfected.
210	,,	Rooms were Sprayed.
161	,,	Laundry, Washing, etc., was done at home.

Onset of Fatal Cases.

Period of time from date of "onset" to death.

Years.

Period	Under 6 mths	1	2	3	4	5	6	7	8	9	10 & over	?
Cases	58	56	49	25	10	8	7	6	3	1	8	65 = 296

Institutions......	101
	397

WINSLEY SANATORIUM.

City Maintained Beds, 1908.

During the year 107 Males and 70 Females made application.

The ages of these 177 applicants were 6 under 15; 66 at ages 15 to 25; 105 at ages 25 to 65.

Admitted to the Sanatorium 41 Males, 36 Females. Total 77.

Period of time from date of receipt of application to date of admission :—

1 Case waited 2 weeks.
4 ,, ,, 3 ,,
1 ,, ,, 4 ,,
3 ,, ,, 5 ,,
4 ,, ,, 6 ,,
4 ,, ,, 7 ,,
5 ,, ,, 8 ,,
12 ,, ,, 9 ,,
8 ,, ,, 10 ,,
11 ,, ,, 11 ,,
2 ,, ,, 12 ,,
3 ,, ,, 13 ,,
2 ,, ,, 14 ,,
4 ,, ,, 15 ,,
4 ,, ,, 16 ,,
2 ,, ,, 17 ,,
1 ,, ,, 18 ,,
2 ,, ,, 19 ,,
1 ,, ,, 22 ,,
1 ,, ,, 23 ,,
1 ,, ,, 31 ,,
1 ,, ,, 33 ,,

77 average = 11 weeks.

Discharged from Sanatorium 39 Males, 37 Females. Total 76.

In the case of some patients delay was due to inability to provide a suitable outfit through poverty, gifts of warm clothing were received from some kind friends, and are always acceptable.

The " Class " into which the 76 Discharged cases were placed on admission to the Institution. (Winsley Resident Medical Officer's selection).

Class I.	Cases	9
,, II.	,,	29
,, III.	,,	34
*Unclassified		4
		76

**Unclassified Cases*—	1	*Case in Sanatorium* 22 *days.*
	1	,, ,, ,, 14 ,,
	2	,, ,, ,, 1 *day.*
	4	

After History.

After History of Patients treated in the Bristol Maintained Beds at Winsley Sanatorium.

Year of Discharge.	Total No. Discharged.	Alive on 31st December, 1908.	Well and working capacity maintained.	Whereabouts unknown.	Dead.
1905	45	19	13	5	21
1906	67	29	22	9	29
1907	68	44	41	14	10

The following Table shows how the 172 applications were dealt with :—

60	.. "Selected" and "Admitted."
42	.. Not accepted by Committee.
8	.. Rejected by Medical Consultative Board as "not suitable."
15	.. Withdrawn.
15	.. Waiting for admission on 2nd January, 1909.
8	.. Died since receipt of application.
29	.. A fresh medical certificate to be sent in.
177	Total.

Condition stated upon Discharge.

62	.. Discharged improved.
7	.. Discharged little improved.
9	.. Discharged not improved.
78	Total.

I am, my Lord Mayor and Gentlemen,

Your obedient Servant,

D. S. DAVIES, M.D., D.P.H.

Medical Officer of Health for the City and County of Bristol, and for the Port of Bristol; General Medical Superintendent City Hospitals; Lecturer on the Principles and Practice of Public Health. University College, Bristol (Medical School); Past-President of the Incorporated Society of Medical Officers of Health; of the Bath and Bristol Branch of the British Medical Association; and of the Bristol Medico-Chirurgical Society; Examiner in State Medicine (M.D. Examination) to the University of London; Member of Board of Examiners of the Royal Sanitary Institute; Late Medical Inspector (on Cholera Survey and General Sanitary Survey of England) to H.M.' Local Government Board; Surg. Col. (retd.), V.D, 1st Glos. R.G A. (V.); Lt. Col. R.A.M.C. Sanitary Service Territorial Force; etc.

June, 1909.

TABLE B. Showing Population, Births, Marriages, and Deaths, and Birth and Death Rates in Bristol, for the 25 Years, 1884–1908. (All figures revised on 1891 Census).

	Estimated Population.	Registered Births.	*Marriages in the District of the Bristol Union.	DEATHS.					ANNUAL RATES.			
				Total Deaths at all Ages.	Under 1 Year.	Over 1 and under 5.	Over 60.	In Public Institutions.	Birth Rate per 1000.	Death Rate per 1000.	Infantile Mortality to 1000 Births.	Zymotic Rate.
1884	211,048	6,888	1,090	4,023	1,001	538	1,061	653	32·6	19·0	145·3	1·8
1885	212,586	6,786	974	4,281	1,052	639	1,134	629	31·9	20·1	155·0	2·2
1886	214,134	6,724	949	4,253	1,002	619	1,132	694	31·4	19·8	149·1	2·2
1887	215,694	6,619	956	4,542	996	796	1,244	680	30·6	21·0	150·4	3·0
1888	217,266	6,608	981	3,816	824	432	1,138	710	30·4	17·5	124·6	1·3
1889	218,848	6,694	932	4,021	976	595	1,062	660	30·5	18·3	145·8	2·2
1890	220,442	6,634	1,033	4,532	991	597	1,265	730	30·0	20·5	149·4	2·1
1891	222,049	6,725	937	4,631	972	603	1,371	815	30·3	20·8	144·5	1·7
1892	223,592	6,563	973	4,331	953	634	1,197	776	29·3	19·3	145·2	2·0
1893	225,028	6,788	955	4,241	959	411	1,283	851	30·1	18·8	141·2	1·6
1894	226,578	6,393	920	3,888	848	524	1,077	769	28·8	17·1	148·3	2·0
1895	228,139	6,622	846	4,108	935	414	1,321	837	29·0	18·0	141·1	1·1
1896	230,626	6,537	863	3,960	908	476	1,130	793	27·8	16·8	138·9	1·8
1897	232,242	6,514	884	3,988	949	434	1,195	821	28·0	17·1	145·6	1·8
1898	316,900	9,061	837	5,441	1,491	795	1,455	881	28·5	17·1	164·5	2·6
1899	320,911	9,336	2,714	5,844	1,467	567	1,781	1,049	29·0	18·2	157·1	1·8
1900	324,973	8,972	2,839	5.397	1,185	673	1,561	968	27·6	16·6	131·9	1·8
1901	329,086	8,889	2,786	5,249	1,159	558	1,379§	1,039	27·0	15·9	130·4	1·6
1902	334,632	9,368	2,827	5,905	1,225	965	1,351	1,173	27·4	17·3	130·7	2·7
1903	338,895	9,239	2,738	4,822	1,075	467	1,189	1,094	27·2	14·2	116·3	1·1
1904	343,204	9,145	2,894	5,347	1,222	545	1,386	1,162	26·6	15·5	133·7	1·6
1905	358,515	9,649	2,870	5,286	1,182	623	1,336	1,197	26·9	14·7	122·4	1·6
1906	363,223	9,372	2,793	5,299	1,196	495	1,414	1,188	25·8	14·5	127·6	1·6
1907	367,979	8,915	2,793	4,897	900	327	1,500	1,211	24·2	13·3	100·9	0·8
1908	**372,785**	**8,752**	**2.806**	**5.230**	**1,102**	**509**	**1,522**	**1,247**	**23·0**	**13·7**	**125·8**	**1·2**

* Previous to 1899 this includes the Registration Sub-Districts of St. Mary Redcliff, Castle Precincts, St. Paul, St. James, and St. Augustine only.

† The Marriages for 1899 were for the first time given for an area co-extensive with the whole enlarged City.

§Over 65, according to the new age grouping in the L.G.B. Tables.

TABLE C. Showing Number of Deaths from Zymotic Diseases in Bristol, during the 25 years, 1884–1908.

Enlarged City.

	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
Small Pox ...	...	10	8	13	26	...	...	1†	...	2‡	16§	...	5	1	...	..	...	...	1	3	1‖	...	..	1	...
Diphtheria ...	19	25	28	23	26	15	16	16	38	53	50	34	38	36	44	33	103	124	189	119	105	59	82	65	69
Erysipelas ...	11	10	11	10	21	16	9	12	21	11	8	16	10	5	6	13	12	21	12	8	9	8	7	3	6
Scarlet F. ...	37	21	89	217	45	26	40	37	47	35	16	16	59	18	14	13	39	36	66	49	36	39	27	26	10
Typhus ...	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric F. ...	40	16	29	23	28	38	33	23	18	26	21	22	20	47	26	35	44	40	59	21	26	13	21	15	10
Puerperal F.*	18	12	8	9	17	11	12	7	25	16	11	8	8	6	11	22	20	17	17	14	16	6	14	11	7
Measles ...	46	159	101	147	61	185	92	239	105	25	116	8	143	57	309	38	200	7	411	11	94	180	140	36	96
Wh. Cough...	99	149	101	124	38	105	201	53	154	80	177	45	64	118	110	118	54	189	105	65	110	123	102	26	128
Diarrhœa ...	132	89	119	117	68	131	96	58	99	125	65	143	106	153	348	345	165	134	110	107	206	169	213	133	154

* Previous to 1884, Puerperal Fever was not separated in the Local returns from Puerperal Diseases generally.

† This death occurred in the Novers Hill Hospital outside the City, and so did not appear in the General Returns.

‡ Of these deaths one occurred in the Novers Hill Hospital, outside the City, and so did not appear in the General Returns.

§ Of these deaths five occurred in the Novers Hill Hospital, outside the City, and so did not appear in the General Returns.

‖ This death occurred on the Hospital Ship, Avonmouth. Patient was admitted from Keynsham Workhouse, outside the City.

CITY OF BRISTOL.

Infectious Disease (Notification Act), 1889.

Notifications received during each Quarter of 1908.

1908.—Table *a*.

NOTIFIABLE DISEASE	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total of each diseases.
Small Pox	...	...	...	1	**1**
Cholera. Choleraic Diarrhœa ...	...	...	...	...	...
Diphtheria	212	186	220	293	**911**
Membranous Croup ...	2	5	2	4	**13**
Erysipelas	70	35	48	70	**223**
Scarlet Fever or Scarlatina	109	109	88	180	**486**
Typhus Fever ...	...	...	...	...	...
Enteric or Typhoid Fever	25	22	25	31	**103**
Relapsing Fever ...	...	...	...	...	...
Continued Fever ...	...	...	...	...	...
Puerperal Fever ...	4	7	3	8	**22**
Totals in each Quarter	**422**	**364**	**386**	**587**	**1,759**

CITY OF BRISTOL.

TABLE *b*. Notification and Deaths registered by Sub-Districts during the year 1908.

	Small Pox.		Choleraic Diarrhœa.		Diphtheria.		Membranous Croup.		Erysipelas.		Scarlet Fever		TYPHUS.		ENTERIC TYPHOID		Relapsing.	Continued		PUERPERAL.		Total cases in each Sub-District.
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	
Ashley					84	**8**			42	**1**	62				11	**2**				2	**1**	201
Bedminster	1				276	**12**	1		24		71	**2**			8					3	**2**	384
Bristol Central					63	**6**			25	**1**	58	**3**			13					3		162
Clifton					71	**3**			8		65	**1**			1					1	**1**	146
Knowle					24	**2**	1		9	**1**	19				8	**1**				4	**1**	65
St. George					170	**17**	9	**1**	62		97	**3**			28	**5**				2	**1**	368
St. Philip					84	**7**			30	**1**	64				18					4	**1**	200
Stapleton					83	**4**	2	**1**	7	**1**	26				4					3		125
Westbury-on-Trym ...					21	**2**			4	**1**	10	**1**			1							36
Public Insts.					27				11		10				2							50
Admitted to Public Insts from outside of Borough					8	**6**			1		4				9	**2**						22
Total cases of each disease	1				911		13		223		486				103					22		1,759
Total deaths from each disease		**0**				**69**		**2**		**6**		**10**				**10**					**7**	**104**
Percentage of deaths to known cases ...	0·0				7·5		15·3		2·6		2·0				9·7					31·8		5·9

CITY OF BRISTOL.

NOTIFICATION—1908.

TABLE *c*. Showing the number of cases of Infectious Disease notified under the Infectious Disease Notification Act, 1889, since its adoption in 1890.

									Enlarged City.										
	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
Small Pox	0	16	0	165	201	4	42	10	2	0	0	1	6	46	34	13	32	6	1
Diphtheria and Membranous Croup	56	70	106	141	128	165	258	205	217	215	506	908	1,109	1,134	1,051	1,021	839	926	924
Erysipelas	105	135	196	230	154	195	246	203	263	337	342	392	376	244	256	303	239	244	223
Scarlet Fever ...	559	888	1,442	1,245	485	562	1,352	511	382	697	1,957	2,206	2,724	2,168	1,258	1,085	1,019	886	486
Typhus	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Enteric Fever ...	122	117	135	122	90	89	110	350	113	219	285	281	319	134	172	76	120	74	103
Continued or Doubtful Fever ...	6	8	3	6	1	1	2	0	0	2	2	2	1	0	0	0	0	0	0
Puerperal Fever ...	11	11	34	30	18	16	21	10	18	36	46	43	39	31	27	30	37	36	22

COMPARATIVE TABLE—Showing the Estimated Population, Birth-rate, Death-rate, Zymotic-rate, Fever Death Rate, Diarrhœa Death Rate, and Infantile Death Rate of the 15 LARGEST TOWNS OF ENGLAND (those having a population of over 200,000); also of EDINBURGH, GLASGOW, DUBLIN and CARDIFF, for the Year 1908, compared with the same particulars and rates for the group of 76 large towns.

From the Registrar General's Return.

	Estimated Population, middle of 1908.*	Birth-rate.	Death-rate.	Zymotic rate.	Fever Death-rate.	Diarrhœa Death-rate.	Deaths under 1 year to 1000 Births.
76 Large Towns	16,234,952	26·9	14·9	1·59	0·08	0·65	129
London	4,795,757	25·2	13·8	1·35	0·05	0·53	113
Liverpool	753,203	31·7	19·2	2·19	0·11	0·84	141
Manchester	649,251	29·1	18·2	2·25	0·11	0·92	151
Birmingham	558,357	28·4	15·9	1·86	0·09	0·80	144
Leeds	477,107	24·8	15·3	1·49	0·05	0·67	137
Sheffield	463,222	30·7	15·8	1·85	0·06	0·87	140
Bristol	**372,785**	**23·1**	**13·6**	**1·16**	**0·02**	**0·34**	**126**
West Ham	315,000	28·8	13·9	2·39	0·09	1·00	128
Bradford	292,136	20·2	15·5	1·36	0·10	0·65	143
Newcastle-on-Tyne	277,257	29·7	16·0	1·26	0·05	0·46	136
Hull	271,137	30·2	16·2	2·19	0·08	1·36	145
Nottingham	260,449	26·6	15·2	1·25	0·11	0·54	145
Salford	239,294	29·6	17·8	3·04	0·17	0·98	152
Leicester	240,172	23·4	13·0	1·53	0·03	0·50	131
Portsmouth	211,493	28·4	13·8	0·97	0·12	0·26	99
Edinburgh	†350,524	21·3	15·2	1·06	0·02	0·34	122
Glasgow	†859,715	27·7	17·7	2·74	0·09	0·79	137
Dublin	§394,525	28·7	21·5	1·68	0·14	0·80	146
Cardiff	191,446	29·7	19·5	1·78	0·18	0·67	147

* These Populations are based on the 1901 Census returns. † The Figures for Edinburgh and Glasgow are for the calendar year.

§ Excluding Deaths of Persons admitted to Public Institutions from without the boundary.

TABLE I.

Vital Statistics of Whole District during 1908 and Previous Years.

CITY OF BRISTOL.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.				TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
				Under 1 Year of Age.		At all Ages.						
		Number.	Rate per 1000 population.	Number.	Rate per 1000 Births registered.	Number	Rate per 1000 population.				Number.	Rate per 1000 population.
1	2	3	4	5	6	7	8	9	10	11	12	13
1898	316,900	9,061	28·5	1,491	164·5	5,441	17·1	881	70		5,371	16·9
1899	320,911	9,336	29·0	1,467	157·1	5,844	18·2	1,048	89		5,755	17·9
1900	324,973	8,972	27·6	1,185	131·9	5,397	16·6	971	79		5,318	16·3
1901	329,086	8,889	27·0	1,159	130·4	5,249	15·9	1,039	79		5,170	15·7
1902	334,632	9,368	27·4	1,225	130·7	5,905	17·3	1,173	115		5,790	16·9
1903	338,895	9,239	27·2	1,075	116·3	4,822	14·2	1,094	118		4,704	13·8
1904	343,204	9,135	26·6	1,222	133·7	5,347	15·5	1,162	109		5,238	15·2
1905	358,515	9,649	26·9	1,182	122·4	5,286	14·7	1,197	97	4	5,193	14·4
1906	363,223	9,372	25·8	1,196	127·6	5,299	14·5	1,188	101	2	5,200	14·3
1907	367,979	8,915	24·2	900	100·9	4,897	13·3	1,211	113	1	4,785	13·0
Averages for years 1898-1907 ...	339,831	9,193	27·0	1,210	131·6	5,348	15·7	1,096	97	*	5,252	15·4
1908	372,785	8,753	23·0	1,102	125·8	5,230	13·7	1,247	131	10	5,109	13·4

*The information required is not available.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public Institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made should be given on the back of this Table.

Area of District in acres (exclusive of area covered by water) 11,705

At Census of 1901.	
Total population at all ages	328,945
Number of inhabited houses	58,235
Average number of persons per house ..	5·6

I. Institutions within the District receiving sick and infirm persons from outside the District.	II. Institutions within the District receiving sick and infirm persons from the District.	III. Other Institutions, the deaths in which have been distributed among the several localities in the District.
Royal Infirmary.	Royal Infirmary.	City Hospitals :—
General Hospital.	General Hospital.	Novers Hill,
Children's Hospital.	Children's Hospital.	Ham Green,
		Clift House (closed July, 1906).
Cossham Hospital.	Cossham Hospital.	
Convalescent Home.	Convalescent Home.	
Orthopædic Hospital.	Orthopædic Hospital.	

Municipal Institutions (within the City)—

Eastville Workhouse.

Southmead Workhouse.

Stapleton Workhouse.

Lunatic Asylum.

CITY OF BRISTOL.

Table II

Vital Statistics of Separate Localities (Registration Sub-Districts) in 1908 and previous years.

Names of Localities.	1.—Ashley.				2.—Bedminster.				3.—Bristol Central.				4.—Clifton.				5.—Knowle.				6.—St. George.				7.—St. Philip.				8.—Stapleton.				9.—Westbury-on-Trym.			
Year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c	d.	a.	b.	c.	d.	a.	b.	c.	d	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.
*1898 ...																																				
1899 ...	38,921	880	496	108	53,814	2,010	1,014	344	54,247	1,282	993	227	46,869	770	658	97	8,346	339	141	42	48,155	1,783	819	278	52,909	1,656	841	271	17,650	530	251	63				
1900 ...	40,107	843	510	109	54,828	1,938	909	236	54,108	1,158	826	150	47,301	660	577	74	8,585	352	171	45	48,763	1,764	725	242	53,067	1,603	907	249	18,214	491	238	53				
1901 ...	42,548	877	472	73	55,838	1,984	894	248	53,001	1,082	795	194	46,820	701	552	71	8,671	401	146	37	50,501	1,798	755	248	52,269	1,477	794	208	19,438	569	221	80				
1902 ...	40,881	875	502	100	61,672	2,087	968	237	44,744	1,131	829	176	44,260	665	591	77	13,709	452	199	56	58,194	1,842	884	253	48,891	1,665	997	258	22,191	607	257	60				
1903 ...	42,039	943	462	92	63,142	2,041	797	229	43,726	1,065	618	139	44,435	660	494	56	14,058	451	153	39	59,738	1,822	747	214	48,986	1,614	711	203	22,771	553	214	64				
1904 ...	42,842	894	411	75	64,505	2,003	850	243	42,793	1,027	706	157	44,446	688	556	68	14,679	522	200	65	61,670	1,779	853	273	48,810	1,545	814	238	23,459	575	260	62				
1905 ...	44,144	921	445	86	65,877	2,072	826	234	41,864	1,042	771	162	41,462	702	558	69	15,302	548	199	50	63,612	1,792	759	216	48,639	1,586	735	226	24,151	556	241	68	10,464	347	135	41
1906 ...	45,023	906	468	72	67,261	1,981	865	256	40,936	1,024	665	178	44,483	696	541	75	15,928	530	210	57	65,567	1,703	706	196	48,472	1,551	803	238	24,847	555	222	57	10,706	334	141	34
1907 ...	45,909	908	469	68	68,652	1,937	775	195	40,011	920	621	109	44,504	620	507	67	16,558	512	214	44	67,533	1,551	623	144	48,310	1,494	648	156	25,547	569	251	56	10,950	300	99	22
Averages of Years 1898 to 1907.																																				
1908 ...	46,802	837	501	81	70,055	1,765	787	217	39,087	957	628	156	44,539	634	530	58	17,191	504	197	49	69,511	1,635	720	198	48,152	1,413	757	229	26,252	589	275	57	11,196	324	107	28

*The Registration Sub-Districts were so interchanged and altered at the Extension of the City in 1897, by the consequent re-arrangement of Boundaries in 1898, that this Table cannot be given for previous years.

CITY OF BRISTOL.

Cases of Infectious Disease notified during the Year ending 2nd January, 1909.

Notifiable Diseases.	Cases notified in Whole District.							Total Cases notified in each Locality.											No. of Cases removed to Hospital from each Locality.										
	At all Ages.	At Ages—Years. Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards	Ashley	Bedminster	Bristol Central	Clifton	Knowle	S. George	S. Philip	Stapleton	Westbury-on-Trym	Public Institutions	Not belonging to Borough	Ashley	Bedminster	Bristol Central	Clifton	Knowle	S. George	S. Philip	Stapleton	Westbury-on-Trym	Public Institutions	Not belonging to Borough
Small-pox	1	...	...	...	...	1	...	...	1	...	...	...	...	..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Cholera	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	.	...	...	...	...	...
Diphtheria	911	9	229	535	90	48	...	84	276	63	71	24	170	84	83	21	27	8	49	186	51	36	15	95	59	48	14	16	7
Membranous croup ..	13	..	9	4	...	..	...	...	1	...	...	1	9	.	2	...	...	...	...	...	...	...	...	...	...	..	...	.	.
Erysipelas . ..	223	8	9	15	19	136	36	42	24	25	8	9	62	30	7	4	11	1	3	3	4	...	...	1	...	...	...	4	1
Scarlet fever	486	4	156	276	36	14	...	62	71	58	65	19	97	64	26	10	10	4	31	44	47	34	9	60	45	18	6	9	4
Typhus fever ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	..	...	...	...	...	...	...
Enteric fever ...	103	...	2	35	22	44	...	11	8	13	1	8	28	18	4	1	2	9	7	4	8	1	5	22	12	2	...	2	7
Relapsing fever ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
Continued fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
Puerperal fever ...	22	...	...	...	4	18	...	2	3	3	1	4	2	4	3	...	...	...	...	1	1	...	1	1	2	1	...	..	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	1759	21	405	865	171	261	36	201	384	162	146	65	368	200	125	36	50	22	90	239	111	71	30	179	118	69	20	31	19
Phthisis ..	516		12	34	122	345	3	51	104	94	33	27	67	103	14	5	15	3											

Table IV

CITY OF BRISTOL

Causes of, and Ages at, Death during the Year ending January 2nd, 1909.

Cause of Death.	Deaths in whole District at subjoined Ages.							Deaths in Localities (at all Ages).											Deaths in Public Institutions.
	All ages.	Under 1.	1 and under 5.	5 and under 15	15 and under 25	25 and under 65	65 and upwards	Ashley	Bedminster	Bristol Central	Clifton	Knowle	S. George	S. Philip	Stapleton	Westbury-on-Trym	Municipal Institutions	Not belonging to Borough	
SMALL-POX	...	.	...	...	...	..	...	...	...	...	.	...	...	...		...	...		...
Chicken Pox	1	...	1	...	..	...	...	1	...		...	...	...		.	...	...	...	...
MEASLES	96	22	71	3	...	...	...	4	12	22	4	1	6	45	...	1	...	1	4
SCARLET FEVER	10	1	8	1	...	...	...	...	2	3	1	...	3		...	1	...	...	9
WHOOPING-COUGH	128	64	60	4	...	...	...	18	27	13	9	3	29	22	3	3	1	...	3
DIPHTHERIA	67	1	33	32	...	1	...	8	12	6	3	2	17	7	4	2	...	6	45
MEMBRANOUS CROUP	2	...	2	..	...	...	...		...	..	...	...	1	.	1	...	...		..
Croup	3	...	3	.	...		...	...	1	...	...	...	...	...	2	...	...	...	...
FEVER Typhus	...	..	...	...	...	.	...	..	..	...	...		...	...	...	...	...	...	...
FEVER Enteric	10	.	...	3	.	7	...	2	...	...	..	1	5	..	...	...	...	2	8
FEVER Other continued	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
Cerebro Spinal Meningitis	1	...	1	...	...	..	...	...	...	...	...	..	...	...	1	...	..	...	...
Influenza	73	3	2	2	2	32	32	9	5	10	18	1	6	9	1	2	12	...	13
Cholera	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
Plague	..	..	...	.	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
DIARRHŒA	154	128	20	...	...	2	4	7	31	20	4	7	40	35	7	1	1	1	26
Enteritis	29	19	6	...	1	1	2	2	5	2	5	...	4	5	1	3	1	1	5
Puerperal fever	7	...	...	...	...	7	...	1	2	...	1	1	1	1	...	...	...	...	1
Erysipelas	6	3	.	...	...	3	...	1	1	...	1	...	1	1	1	...	...	...	2
Other septic diseases	3	..	1	...	...	2	...	...	1	1	...	...	...	...	...	...		1	3
Phthisis	397	3	10	10	89	281	4	35	64	42	24	15	47	51	26	7	84	2	101
Other Tubercular diseases	140	33	39	22	17	28	1	19	32	14	13	8	12	15	11	3	6	7	43
Anthrax	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cancer, malignant disease	306	..	2	2	4	185	113	38	40	28	48	10	36	25	15	7	45	14	91
Bronchitis	469	91	27	1	2	120	228	45	77	71	37	15	71	82	16	10	41	4	47
Pneumonia	410	132	126	14	13	82	43	34	68	45	21	15	73	97	21	8	18	10	87
Pleurisy	17	1	...	...	2	10	4	2	...	4	4	1	2	1	...	...	2	1	5
Other diseases of Respiratory Organs	99	13	4	1	6	53	22	6	13	11	21	3	10	11	1	1	22	..	30
Alcoholism Cirrhosis of liver	42		...	...	...	36	6	6	5	11	7	1	5	3	...	...	3	1	13
Venereal diseases	19	14	1	...	...	4	...	3	4	1	1	...	...	7	...	1	2	...	5
Premature birth	189	189	...	...	...	...	...	17	42	27	7	8	34	33	12	4	5	...	9
Diseases and accidents of parturition	15	1	...	..	3	11	...	2	4	1	..	3	...	...	1	...	3	1	3
Ac. Rheumatism, Rh. Fever	29	1	..	3	3	14	8	..	5	5	1	.	5	8	3	1	1	...	4
~~Heart~~ diseases	466	14	2	14	14	222	200	49	66	65	51	18	66	56	31	6	49	9	83
Diseases of Blood Vessels	257		1	1	1	111	143	26	38	34	31	12	29	38	18	2	24	5	38
Diseases of Nervous System	385	109	38	15	12	107	104	39	36	43	35	19	43	49	23	5	87	6	115
Diseases of Urinary System	211	1	2	3	8	109	88	16	29	17	27	7	16	24	9	6	47	13	87
Other Diseases of the Digestive System..	183	23	11	24	13	77	35	25	28	19	28	9	22	15	14	6	5	12	75
Accidents—Negligence	135	5	21	18	15	58	18	9	15	24	11	7	15	17	7	6	9	15	74
Suffocation—Overlying	12	12	..	...	...	...	...	...	3	2	...	...	3	2	2	...	...	...	1
Homicide	3	...	...	..	...	3	...	...	...	2	...	...	...	...	...	...	1	...	2
Suicide	34	...	...	...	4	26	4	1	5	8	4	1	3	8	...	1	...	3	3
All other causes	822	219	17	10	15	98	463	76	114	77	113	29	115	90	44	20	128	16	212
All causes	5230	1102	509	183	224	1690	1522	501	787	628	530	197	720	757	275	107	597	131	1247

	Ashley	Bedminster	Bristol Central	Clifton	Knowle	S. George	S. Philip	Stapleton	Westbury-on-Trym	Municipal Institutions	Not belonging to Borough	Deaths in Public Institutions.
District Death Rates	10·50	11·02	15·76	11·67	11·24	10·16	15·42	10·26	9·37	...	...	..
District Birth Rates	17·54	24·71	24·02	13·96	28·76	23·07	28·78	21·99	28·39	...	...	...
Deaths of Infants under 1	81	217	156	58	49	198	229	57	28	18	11	...
Number of Births	M442 F.395	901 864	478 479	321 313	259 245	833 802	712 701	293 296	178 146	54 41	...	...
	837	1765	957	634	504	1635	1413	589	324	95		
Infantile Rate	96·77	122·94	163·00	91·48	97·22	121·10	162·06	96·77	86·45	...	...	...

CITY RATES.

No. of Births.	Birth Rate.	Death Rate.			Principal Epidemic Diseases (Zymotic) Rate.	Infantile Rate.
		This Year.	Last Year.	10 Years' Average		
Males. 4471 Females. 4282 8753	23·03	13·76	13·30	15·73	1·22	125·89

BACTERIOLOGICAL EXAMINATIONS.

Diphtheria								Enteric Fever					Sputum	
1st Culture				Control										
A	B	C	D	A	B	C	D	+	(–)	?+	?(–)	?	+	(–)
302	439	765	884	160	557	1035	861	54	114	3	1	—	174	442
Total 2390				Total 2613				Total 172					Total 616	

Grand Total 5,791.

Average age at Death of persons aged 65 and upwards, 75 years and 2 months.

Births of Illegitimate Children (Males 135, *Females* 124*)*—259

Deaths	„	„	81
Inquests			456
Uncertified Deaths			7

TABLE V.

INFANTILE MORTALITY during the Year ending 2nd January, 1909.

Deaths from Stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under 1 Year.
All Causes :—																	
Certified	213	51	57	49	370	124	115	97	57	55	53	57	45	49	29	46	1097
Uncertified	5	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	5
Common Infectious Diseases :—																	
Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	..	..	..	..	..	..	..	..	2	2	1	5	4	1	3	3	21
Scarlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Diphtheria : Memb. Croup	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Whooping Cough	..	..	..	2	2	7	8	11	2	6	4	3	8	5	5	3	64
Diarrhœal Diseases :—																	
Diarrhœa, all forms	..	1	2	6	9	11	26	10	16	10	14	15	4	7	4	2	128
Enteritis (not Tuberculous)	..	1	1	2	4	..	1	1	4	3	..	4	2	..	..	..	19
Gastritis, Gastro-intestinal Catarrh	..	..	..	..	..	..	..	..	1	..	..	..	2	2	1	..	6
Wasting Diseases :—																	
Premature Birth	124	16	19	9	168	14	1	2	1	..	..	..	..	..	..	..	186
Congenital Defects	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Injury at Birth	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Want of Breast-milk	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Atrophy, Debility, Marasmus	9	5	6	7	27	26	14	19	7	4	3	1	3	4	1	3	112
Tuberculous Diseases :—																	
Tuberculous Meningitis	..	..	..	..	..	2	..	1	1	..	6	1	2	2	1	2	18
Tuberculous Peritonitis : Tabes Mesenterica	..	..	..	..	..	..	1	..	..	1	2	1	..	..	1	1	7
Other Tuberculous Diseases	..	..	..	..	..	..	2	4	1	..	1	1	..	..	..	3	12
Erysipelas	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	3
Syphilis	1	1	1	..	3	6	1	2	1	..	..	..	..	1	..	..	14
Rickets	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2
Meningitis (not Tuberculous)	..	..	..	..	..	..	..	1	2	..	1	2	1	1	2	2	12
Convulsions	22	3	8	8	41	11	9	5	2	3	3	3	..	6	1	3	87
Bronchitis	1	6	5	2	14	13	16	18	5	7	2	2	3	3	3	5	91
Laryngitis	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	2
Pneumonia	..	1	..	3	4	13	15	8	8	8	9	16	10	13	6	14	124
Croup—Spasmodic	..	..	..	..	..	..	1	1	..	3	..	..	..	1	1	..	7
Suffocation, overlying	6	..	..	..	6	2	2	1	1	..	..	..	..	..	..	..	12
Other Causes	54	17	15	10	96	16	17	12	3	7	7	2	6	..	..	5	171
	218	51	57	49	375	124	115	97	57	55	53	57	45	49	29	46	1102

PART II.

GENERAL.

WATER SUPPLY.

The Bristol Water Works Company.

Sources of Supply.—(1) Springs in the triassic conglomerates and carboniferous limestone of the Mendip Hills, 16 miles from the City. (2) The Yeo Reservoir, and Richford and Langford Springs, 12 miles from City. (3) Deep wells at Chelvey in the New Red Sandstone (triassic).

Store Reservoirs.—At Barrow Gurney, where the water is filtered before delivery.

Water Service.—Constant.

Average Daily Consumption.—23 Gallons per head.

The City Analysist furnishes the following Report.

Analysis of Water.

Twenty-one samples were examined—six samples representing the City water supply were reported upon, and this report appears.

Fifteen other samples were received—twelve from the Medical Officer of Health, two from the Docks Engineer and one from the City Engineer. The following conclusions were found in reference to those received from the Medical Officer :—

Sewage pollution was evident in four cases, one of which also showed surface drainage. Two samples appeared to be those of the City supply, contaminated after leaving the pipes, by surface drainage. Two samples showed past pollution. One sample showed recent and continuous but unassignable pollution. One sample was dirty tidal water, and one sample was pure but slightly discoloured. One showed contamination by surface drainage only.

The two samples received from the Docks Engineer were tidal water, and that from the City Engineer was a raw sewage.

Analytical Data (Chemical and Bacteriological) of City Water Supply.

Number of sample	7.		9.		11.		13.		19.		21.	
Date of collection	30th March.		27th May.		13th July.		15th September.		3rd December.		31st December.	
Place of collection	Tap in Laboratory.		Tap in Laboratory.		Tap in Laboratory.		Tap in Laboratory.		Barrow Gurney.		Tap in Laboratory.	
Physical appearance	Clear, bright, neutral to litmus.		Clear, bright, neutral to litmus.		Clear, bright, neutral to litmus.		Clear, bright, neutral to litmus.		Clear, bright, neutral to litmus.		Clear, bright, neutral to litmus.	
Remarks on solids	No smell on heating solids.		No smell on heating solids.		No smell on heating solids.		No smell on heating solids.		No smell on heating solids.		No smell on heating solids.	
	Parts per 100,000.	Grains per gallon.	Parts per 100,000.	Grains per gallon.	Parts per 100,000.	Grains per gallon.	Parts per 100,000.	Grains per gallon.	Parts per 100,000.	Grains per gallon.	Parts per 100,000.	Grains per gallon.
Free Ammonia	traces		traces		slight traces		traces		nil.		nil.	
Albuminoid Ammonia ..	·008	·0056	·0056	·0045	·007	·0049	·009	·0063	·004	·0028	·006	·0042
Nitrogen in Nitrates ..	·064	·044	·048	·034	·036	·025	·08	·056	·081	·057	·21	·147
Chlorine as Chlorides ..	1·4	1·0	1·4	1·0	1·4	1·0	1·4	1·0	1·57	1·1	1·57	1·1
Total Hardness	—	12·3°	—	10·7°	—	9·6°	—	10°	—	15°	—	12·9°
Permanent Hardness ..	—	3·8°	—	3·7°	—	4·0°	—	—	—	4·4°	—	4·4°
Temporary Hardness ..	—	8·5°	—	7·0°	—	5·6°	—	—	—	10·6°	—	8·5°
Total Solids	34	23·8	29·0	20·3	28·5	19·95	27·75	19·42	37·0	25·9	37·0	25·9
Mineral Matter	19	13·3	17·0	11·9	15·5	10·85	20·75	14·52	24·5	17·15	21·0	14·7
Loss on ignition ..	15	10·5	12·0	8·4	13·0	9·1	·70	4·9	12·5	8·75	16·0	11·2
Oxygen absorbed in two hours at 80° F.	·0456	·0319	·056	·039	·04	·028	—	—	·02	·014	·042	·0294
Nitrates	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Colonies per cc on Gelatine at 22° C. ..	23	—	30	—	50	—	—	45	—	20	—	10
Colonies per cc on Agar at 37° C. ..	6	—	2	—	7	—	—	9	—	4	—	2
MacConkey's Bile Salt broth (B. coli test) 25cc water used	negative	—	—	acidity	—	acidity	—	negative	—	negative	—	slight acidity

Sewerage, Drainage, Scavenging, etc.

All these matters are reported upon annually by the City Engineer to the Sanitary Committee, and the Report is published.

Parks and Open Spaces.

The Parks and Open Spaces available for the recreation of the people comprise in all 792¾ acres, including Clifton and Durdham Down, which have a combined area of 442 acres.

Of the 792¾ acres, 287½ are laid out as parks, gardens, or playgrounds ; but the public has the right to wander over about 603 acres. Wicket pitches are allowed on Durdham Down and in four of the parks. The net annual cost of the Parks and Open Spaces is about £5,000.

Medical Inspection in Public Elementary Schools.

The number of children attending the Board Schools in September, 1897, before the extension of the City, was 18,077, and attending other schools was 21,868 ; or a total of 39,945. In 1898 the City was enlarged, a further enlargement took place in 1904, and by the 1st January, 1909, the total number of scholars attending the schools controlled by the Education Committee had risen to 60,457.

	No.	Accommodating.
Council Schools	44	39,295
Church of England Schools	42	18,678
Wesleyan Schools	1	615
Friends' School	1	500
Roman Catholic Schools ..	5	1,369
Totals	93	60,457

I am informed that there were 75 children under 3 years of age attending the Public Elementary Schools in October, 1908, and that in certain schools the Education Committee have decided to exclude children under 5.

In some of the poorer districts, however, children under five will be admitted.

The number of children under 8 years of age on the Registers of the Public Elementary Schools in October, 1908, was 24,482, and of that number, 5,122 were under five years of age.

Medical inspection of school children has been provided for by the Education Committee, under the Education (Administrative Provisions) Act, 1907.

The City has been divided into five districts, to each of which a part-time Medical Officer, in general practice, has been appointed, who devote three school half-days, of two and a half hours each, per week to the work.

The work was commenced on September 1st, 1908, the first month being utilised in a general survey to discover cases of under-feeding in some of the poorest districts, in view of the scheme for providing meals since adopted by the Committee.

Two whole-time Health Visitors or Nurses have been appointed, each taking one of the two school groups into which the schools in the City have been divided : these Nurses are chiefly engaged, under medical instructions, in attending to the dirty heads, discharging ears, and general conditions of cleanliness ; they also visit the homes and advise the parents.

The School Medical Officers have not yet found time to make any detailed examination of the hygienic condition of the schools.

The number of school visits paid during the year has been 188, and the number of children inspected is 3,081. Particulars of the results of inspection are given in the Report.*

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* First Report of Medical Inspection of School Children. Bristol Education Committee, for the period ending 31st Dec., 1908.

Co-relation of the School Medical Service with the Public Health Service.

In 1905, as there were then no School Medical Officers, and it was desirable that the Teachers should co-operate with the Health Department in dealing with communicable diseases in schools, the Education Committee adopted certain Regulations under which the Head Teacher has to forward a card to the Medical Officer of Health, giving notice of any case of known or suspected sickness in the school. These regulations were especially designed to secure early information as to Measles, Whooping Cough, Chicken-pox, German Measles, or Mumps, which, as they are not notified by Medical Practitioners, may readily escape notice, though they form a considerable proportion of school illnesses.

Upon receipt of the cards from the Head Teachers, general enquiries are made at the affected houses by the District Inspectors, and precautionary notices left. The card is returned to the school with the provisional date for return marked upon it.

The Education Committee were advised to adopt these Regulations in 1905, not as a satisfactory solution of the question of dealing with communicable disease in schools, but as a temporary expedient until Medical Officers of schools were appointed, when it was hoped the School Medical Officer would be able to deal with the control of disease among the scholars in school, of which he would be in a position to gain earliest knowledge. This is the plan which has worked satisfactorily in London, where the School Medical Officer is distinct from the Medical Officer of Health, and it would seem to be the only satisfactory plan under such circumstances.

Up to the present, Measles epidemics, which recur periodically, have not been satisfactorily controlled, as it has been found to be impracticable, without being in daily Medical touch with the schools, to detect the very earliest cases ; and if these are missed subsequent control is impossible. The best of Teachers are generally a few days too late in detecting the early Measles cases, and it is just these few days that matter. In the most recent Education Code, the power of voluntary school closure or exclusion of particular scholars is definitely given to the School Medical Officer, with whose duties in this respect the Medical Officer of Health cannot interfere, except through the Health Committee ; and the control of Measles must be initiated at the schools, and, if it is to be effectual, by the School Medical Officer.

In the case of Diphtheria in schools, as with Measles, the duties of the Medical Officer of Health and of the School Medical Officer meet, but it is not quite clear, as yet, how they blend.

Before the appointment of School Medical Officers, it became necessary, upon the outbreak of Diphtheria in a school, to secure special Medical assistance, in order to make an individual examination of whole classes, or of whole schools : this assistance was provided by the Health Committee, as there were no School Medical Officers, but the work would seem to be essentially a work of school medical inspection.

At present the School Medical Inspecting Staff is not strong enough to undertake the heavy strain of such epidemic work ; and the Health Department has no means of doing it except by the provision of special medical assistance ; it cannot be effectually done first by one at the inception of an outbreak, and then, upon its wide extension, by the other, for such divided counsels would, perhaps, result in trouble. It would be well to clearly understand what is, in the opinion of the Central Education Authority, the proper adjustment of the duties of the Education and Health Authorities in regard to epidemic disease amongst scholars in school.

The following table shows the number of cases of non-notifiable diseases forwarded to the Medical Officer of Health.

1908.

	1st Quarter ending 28th March.	2nd Quarter ending 27th June.	3rd Quarter ending 26th September.	4th Quarter ending 2nd Jan., 1909.	Total
Measles	244	361	69	55	729
Chicken-pox ..	45	62	9	22	138
Whooping Cough	107	100	32	16	255
Mumps	14	24	1	33	72
Suspicious Throats & Rashes	1	3	0	21	25
	411	550	111	147	1219

No returns of any of these diseases have been received from the following schools during the year 1908.

Anglesea (C.)
Bedminster (V.), East Street.
Christ Church (V.), Victoria Street.
Cutlers' Hall (V.), Rosemary Street.
Day Industrial, Temple Backs.
Downend Road (C.) (temp.)
Dr. Bell's (V.), Fishponds Road.
Easton Road (C.)
Emmanuel (V.), Louisa Street.
Fairfield (C.)
Fishponds College Practising School (Infants), Manor Road, Fishponds.
Fishponds College Practising School (Girls), Oldbury Court Road.

Greenbank (C.)
Holy Cross, R.C. (V.), Victoria Street, Temple.
Hotwells (C.), Hope Chapel Hill.
Hotwells National, Hotwells.
Marlborough Hill (V.)
Moorfields (C.)
Newfoundland Road (C.)
Orchard Place, Stillhouse Lane.
Park Place, R.C. (V.)
Parson Street (C.)
Portland (C.), Henrietta Street, Kingsdown.
St. Augustine's (V.), Wells Street.
St. Bonaventure, R.C. (V.), Egerton Road.
St. George's (V.), Brandon Hill.
St. George (C.)
St. George (V.)
St. James' (V.), St. James' Barton.
St. Luke's (V.), Weare Street.
St. Mary's, Redcliff, Infants' (V.), Barnard's Place.
St. Mary's, Redcliff, Boys', Redcliff Parade.
St. Mary's, Redcliff, Girls' and Infants' (V.), Ship Lane.
St. Matthias (V.), Broad Weir.
St. Matthew's (C.), Kingsdown.
St. Michael's (V.), Old Park.
St. Nicholas with St. Leonard's (V.), Queen Charlotte Street.
St. Nicholas, R.C. (V.), Pennywell Road.
St. Paul's (V.), Portland Square.
St. Paul's (V.), Dean Lane.
St. Philip's Church (V.), Tower Hill.
Stapleton (V.), Stapleton.
Stoke Bishop (V.)
Sussex Street (C.)
Temple Colston (V.), Temple.
Two Mile Hill (C.)
Victoria Park (C.), St. John's Lane.
Victoria Road (temp.)
Wells Road (C.)
Westbury Park (C.)
Wick Road (C.)

Housing of the Working Classes.

The following Table shows the action taken over a period of 19 years :—

Date.	No. of Houses dealt with.	No. of Houses closed.	No. of Houses made habitable.
1890	35	30	5
1891	72	27	45
1892	26	18	8
1893	2	0	2
1894	34	18	16
1895	31	18	13
1896	28	10	18
1897	4	3	1
1898	9	7	2
1899	33	31	2
1900	21	6	15
1901	6	1	5
1902	64	61	3
1903	67	58	9
1904	34	16	18
1905	28	11	17
1906	9	9	0
1907	18	15	3
1908	30	12	18
Total ..	551	351	200

Municipal Lodging House.

This Lodging House was opened on April 20th, 1905.

The total number of nightly occupations from the 26th March, 1908 to the 25th March, 1909, was 30,592, or an average of 84 lodgers per night during the whole of the period under notice, the total number of beds available being 120. The house was opened on 20th April, 1905, with 60 beds, and continued with this number until the 17th September, 1905, the average number of lodgers per night during that period was 42. On the 17th September, 1905, the number of beds was increased to 120 and the average nightly occupations from that date to 25th March, 1906, was 74.

MORTUARIES.

Quakers' Friars, off Merchant Street, *Post-mortem* Examination Room and Coroner's Court adjoining.

Crew's Hole, St. George, near the Ferry. (Not in use).

In addition to the above, there are Mortuaries for Police purposes at Bedminster and Redland Police Stations.

A new Mortuary is to be constructed at Avonmouth.

THE MIDWIVES' ACT, 1902.

The Council of the City of Bristol on 10th November, 1902, deputed the working of this Act to the Watch Committee (Police). I have no information as to the working of the Act.

Twenty-two notifications of Puerperal Fever have been notified during the year, and seven deaths have been reported.

Nine Midwives in attendance on the cases have had disinfecting baths at Clift House Hospital, and in six instances their instruments have been thoroughly cleansed and disinfected, and in two instances destroyed and replaced.

Notification of Births Act, 1907.

This Act, which is adoptive, provides for the notification of every birth, within 36 hours, to the Medical Officer of Health.

As a penalty attaches to default, and Medical practitioners become liable, some opposition has been manifested to the adoption of the Act.

The Local Government Board will not approve of the adoption of the Act unless satisfactory means are provided for giving effect to its intention :—viz., the extension of advice and assistance to poor mothers in the proper feeding and care of their infants. This involves the appointment of Female Health Visitors.

Most of the information in regard to these cases where assistance would be useful would come through Midwives rather than Medical Practitioners, and it is obviously important that the control of the Midwives and of the Health Visitors should be vested in the same Committee.

It is not, therefore, at present evident whether this Act, if adopted, will be administered by the Health Committee, or by the Watch Committee who at present control the Registration of Midwives.

SPECIAL REPORT

ON THE

FARMS, ATTACHED DAIRIES, AND COWSHEDS IN THE CITY AND COUNTY OF BRISTOL.

On three previous occasions detailed medical inspection of farms, cowsheds, and attached dairies has been made and reports presented to your Committee, but these inspections have been partial, dealing only with those originally in the old City, those in the old City and those added on the first extension, and on the third occasion of those added on the last extension of the boundaries. The inspection in 1908 has covered the whole of these premises now included in the City, scattered over an area of nearly 27 square miles, and comprising :—

Farms, Attached Dairies, and Cowsheds	58
Cowsheds not Farms	2
	60

Of the Cowsheds only one is situated in the centre of the City among dwellings. Several which existed in such situations having gone out of use and occupation since the previous inspections. Since 1902, 22 sheds have gone out of use of which one was fit; two were reasonably fit; and 19 unfit. Although most of these sheds were by no means of a model character it is doubtful whether their disuse is a gain to the City as the milk they produced is probably replaced by supplies from sources outside your officers' supervision, where water supply and conditions of production may be open to objection.

Speaking strictly it may be said that in no instance were the conditions found entirely satisfactory or incapable of some, if not of great, improvement, though in a few cases there was very little to be complained of, and there is certainly considerable all round improvement over the conditions originally existing. The individual premises vary very greatly as to suitability and management, and the following classification expresses the condition of the farms and cowsheds upon the last inspection : Fit 4, reasonably fit 13, unfit 43.

The statement that rather over two-thirds of the Farms and Cowsheds inspected are " unfit," seems startling, but the greater portion of these is so chiefly on account of structural conditions over which your authority has very slight control. Their unfitness is therefore due to initial defect rather than to faulty administration, and, although no unreasonable standard of structural fitness has been set up in judging of these premises, I believe that even now, taken on the whole, the Bristol Farms and Cowsheds are in better condition generally than is the case in the majority of cities, and certainly in most country districts. Since my former inspections a very great deal has been done in securing ventilation, improved light, better drainage of premises, water supply, improvement of yard surfaces by levelling or in making good defective paved surfaces by repairing and jointing, and in several instances by replacement of paving with cement surface : these improvements all tending to increased cleanliness. Some sheds, structurally quite unfit, have been replaced by new ones structurally fit.

The defects found in connection with Cowsheds were associated with conditions of :—

- 1—STRUCTURE
  - (A) Material and structure of walls, roofs and floors.
  - (B) Drainage.
  - (C) Provision for Lighting.
  - (D) Provision for Ventilation.
- 2—MANAGEMENT
  - (A) Cleanliness of yards, sheds, and cattle
  - (B) Grooming of Cattle.
  - (C) Cleanliness in Milking
  - (D) Provision for Cleanliness of Milk Vessels.
  - (E) Overcrowding of Sheds.
- 3—WATER SUPPLY.

With regard to defects of Structure :—

(A). Wood is very commonly used as a wall material, forming either the whole or part of the wall ; it is also used to form partitions between stalls, and is often present in much greater amount than is necessary. The use of wood in Cowsheds is objectionable as it absorbs filth and quickly becomes foul and incapable of efficient cleansing, its use should be limited to the smallest possible quantity. Since previous inspections partitions have been cut down in height, and endeavour is being made to obtain the replacement of wooden fronts, &c., to sheds by brick walls. The walls, where of stone, are usually rough and uneven forming a harbour for filth, and are incapable of proper cleansing. Brick walls, when unprotected, are equally objectionable, for, though the surface is smoother, the bricks themselves absorb foul matter. Both stone and brick walls should be covered inside to a sufficient height with a smooth non-absorbent dado. To secure this in old sheds is almost impossible on account of expense, and, in default of such a smooth surface, I should like to see an extension of the use of a dado made by coating the rough stone or brick with a layer of pitch and paraffin (one gallon of tar and one pint of paraffin mixed hot) and carried to a height of five feet from the floor. When properly applied this gives a smooth varnish-like surface much more capable of cleansing—it is also cheap and easily renewed. Such a dado is in use on several farms.

In nearly every case the shed roofs were good, being formed of tiles or slates ; the tiles generally with open joints, but in one or two instances the roofs were ceiled under and ventilation through the tile spaces prevented.

The lofts for hay (found in a few sheds at my last inspection) formed by rough boards laid on the roof timbers over part of the shed which interfered with air space and ventilation have been removed. Corrugated iron is used for roofing, and also for walling, in one or two cases. As a roof it is objectionable, tending to rapid changes of temperature in the shed, and frequently condensing the moisture of the shed air, so that it drops coldly on the cows' backs ; as a wall material it is open to the same objection, and the corrugated surface is difficult to keep clean.

Floors.—The construction of a shed floor is an important matter. It should be impervious to moisture ; have a fairly smooth surface, yet not so smooth as to cause the cattle to strike up on it ; should as far as possible be free from joints, and should be sloped to a proper channel-course to facilitate drainage. The above requirements can, I think, be best complied with by the use of cement roughed in a herringbone fashion. Such floors have been adopted in some of the new sheds, and during reconstruction of some of the old sheds, and have proved satisfactory. A considerable amount of improvement has gradually been secured in the condition of the shed floors generally, but in most cases the effect is that of a new patch on an old garment : the general unsuitability of the floor remains, the constant trouble and expense of repairs is great, and adequate supervision to see that the old floors of brick, stone, rough cobble, or a mixture of these, are kept in reasonable order is practically impossible.

(B). **Drainage :—**

Considerable improvement over the conditions originally existing as to drainage of these premises has gradually been secured, and the condition at the time of my last inspection may be summarised as follows :—

Drainage recently reconstructed—		
Satisfactory	7	12
Fair	5	
Drainage Satisfactory		15
,, Fair		23
,, Poor		6
,, Bad		4
Total..		60

In one case bad, and in another case poor drainage has since been reconstructed and other cases are in hand.

Under the Regulations as to Cowsheds and Dairies made by the Council on 23rd October, 1905, no drain inlet is allowed inside a cowshed or dairy. This requirement if strictly adhered to would cause several cowsheds to be reported as not complying with the Regulations. Wherever possible endeavour is made to put such sheds in conformity with the Regulations, and in many instances successfully, but owing to local conditions it is in some cases impossible to arrange the shed drainage so as to discharge over or into an outside gully trap ; where this is the case care is taken to see that any opening inside the shed itself is properly trapped. Owing to the work carried out since the inspection in 1905, ponds which were previously fouled by sewage have been improved and cleanliness of yards and sheds has been rendered much more possible.

(c) **Lighting :—**

Considerable improvement over the conditions of 1905 was noted in this connection, although a good deal still remains to be done before all sheds are sufficiently lighted. In only 21 out of 111 cowsheds was the light noted as " bad " and in 23 instances it had been improved since 1905. It is a matter of considerable difficulty to induce those responsible to provide an adequate amount of light, but taken on the whole, I think the Bristol sheds compare favourably with most others in this respect. Sufficient lighting has a very important bearing on cleanliness, on the health of the cattle, and on the amount of care taken with regard to cleanliness of teats and hands during milking; it is difficult to see whether these are sufficiently clean when the sheds are dark.

(D) **Ventilation :—**

In 1905 I reported on this matter as follows :—"Ventilation, was in nearly every instance defective, some of the sheds were extremely hot and close, and in only a few was any provision made for top ventilation." On my recent inspection, in only 16, out of the 111 sheds was the ventilation noted as "bad," in six it was "good," in 35 fair, in 29 improved since 1905, and in the remainder the condition was noted as "poor."

From this it will be seen that a great advance has been made in this important requirement, and the amount of improvement secured in face not infrequently, of strong, though mistaken objections is matter for congratulation.

With regard to Management :—

(A). CLEANLINESS.—Speaking generally, it may be said that a greater attempt seems to be made to keep yards and sheds in a more cleanly condition, though there is still room for much improvement in this respect, and constant reminders as to removal of manure, &c., have had to be given, especially in some instances. The almost prehistoric conditions of dirt under which milk production has been carried out seems to many producers natural and unobjectionable; it is very hard to get them to recognise that it is even sentimentally desirable to alter old established filthy conditions, and that cleanliness is not in the end expensive. In many instances, however, tenants are wishful to be clean, but their efforts are rendered largely abortive by original faulty construction of sheds, and the uneven and poor condition of the yard surface. A good deal has been gradually effected towards better yards by filling up inequalities and application of stone to the surface, but the process of improvement is necessarily a slow one.

(B). Grooming of Cattle.—The cleanliness of milk is largely dependent on the cleanliness of the animal from which it is procured. Dried dung clinging to the flanks is very likely to find its way into the milk pail, thus introducing excremental organisms of very undesirable nature, which find an excellent multiplication ground in the milk and render it likely to produce disease.

Attention to the appearance of the cattle was specially paid, and in only eight instances is their condition noted as fairly clean. Enquiry as to grooming generally elicited the statement that it was " done occasionally " or " when required," but the question seemed to come as a surprise to most and the answers must be considered in that light. In one or two instances the frank statement was made that it was not done, and in one case " not for three months at least." It is difficult to understand the attitude of mind which would regard a horse whose quarters were coated with excrement as a disgrace and too dirty to ride, while a cow in a similar condition is calmly regarded as fit to yield food.

(C). Your Council's Regulations require that no cow shall be milked unless the teats and udder of such cow are thoroughly clean, and unless the milker's hands are also thoroughly clean and free from all infection and contamination.

It is impossible to know whether these requirements are complied with unless a surprise visit is paid to each farm or shed at milking time. In answer to enquiry on these points the statement was general that the teats were washed or dry wiped and the hands washed before milking, but I fear the Regulations are more honoured by breach than observance. At best, observance is in many cases perfunctory as to cleanliness of udders, &c. ; dry wiping of teats with " hay from the floor " or " bedding " (both likely to be themselves filthy), or with a cloth, or a damp cloth carried on from cow to cow without rinsing out, does not carry out the intention of the Regulation, and the state of the last cow's teats may be worse than if not " wiped." Objection to washing udders and teats was made because it tended to chill the udder and chap the teats : the answer is that in well conducted dairies it is done without ill effect. The statement made almost universally that the milker washes his hands is open to still greater doubt ; in three instances not washing was candidly admitted, and in one I saw filthy hands being used for milking. It is true that it is difficult to secure cleanliness of hands, but the farmer should at least provide basin, soap, water and towel and see that they are used. It is largely for these purposes that a supply of water *inside* each shed is so desirable.

In eleven cases overalls, smocks, or aprons were provided for use during milking : in one they were provided but not used. Where used care as to their cleanliness was often lacking ; in only one instance were they stated to be washed weekly.

(D). Not much change as to the cleansing and storing of milk vessels was noted. At one farm the cans are steamed by a special boiler and steam jets, but the usual method adopted is the use of more or less boiling water (often carried some distance to the tins) for "scalding." The vessels after "scalding" are not unfrequently kept in situations where they are liable to more or less contamination. In many instances, however, improvement in the care of tins over that of 1905 was noted. There is still room for improvement.

(E). Overcrowding was not so evident as in 1905.

Of the 36 Farms, &c., inspected in 1905—
Overcrowded 16, or *44 p.c.*
Of the 60 Farms, &c., inspected in 1908—
Overcrowded 8, or *13·3 p.c.*

Of these eight cases, six were of but very slight overcrowding, and only two cases were gross—two cows where there was not room for one—and 60 where there was room for only 35. It is a very difficult matter to control the number of cattle, which varies from time to time, but your Inspector's frequent warnings appear to have greatly lessened the tendency to overcrowd.

Water Supply:—

Of the 60 premises inspected 44 have a supply from a Public Company; 13 are supplied by wells; two by springs, and one by rain-water only.

The water of the wells supplying the 13 premises was found good in six cases; in two cases the water is "usable"; one well is often dry and open to surface pollution, another occasionally fails; the water yielded by the remaining three is polluted. It is unfortunate that in the case of the last five wells mentioned, it is impossible to secure a supply from a pure source such as a Public Company. Since the last medical inspection Company's water has been substituted for polluted well water in four instances, and all premises where such a supply is obtainable under present circumstances, and where its adoption can be enforced, are so supplied. At only five, however, of the 44 farms with a public supply is there a tap in the shed, and it seems a difficult matter to make it understood that such tap is required for proper and easy cleansing of the shed, for ease in securing water for washing udders and hands, and not principally for providing water for the beasts. Endeavour is being made to persuade owners to provide such taps and hose pipe for cleansing purposes. Speaking generally the water supply is fairly satisfactory, though facilities for the use of the Company's supply might well be extended. It is a difficult matter to know what course can be taken in the five instances where the supply is polluted and no pure supply obtainable ; the premises do not of course comply with the Regulations but it would probably be a difficult matter to get them declared unfit for use for milk production.

General Remarks.

This recent inspection shows an advance in many ways on the general conditions existing at the time of former inspections. In many cases improvement was noted, new sheds in place of old faulty structures, improvement in light, ventilation, drainage, structural condition of floors and yards, and in general cleanliness ; but a great deal is still to be desired before the conditions under which the milk is produced can be considered really satisfactory. In my report of 1905 I pointed out that many of the gravest conditions result from original faults of construction of buildings, which render cleanliness practically impossible, and that no adequate means for dealing with these structural faults would exist until the Sanitary Authority was required to license the *premises* and not simply the occupier, and was given power to refuse their license unless the premises were such as to meet with their approval. In spite of many difficulties a good deal of structural improvement has been secured, and if the new Milk Bill should pass it appears that the power to license the premises, and refuse licenses where they do not comply with reasonable requirements, will be granted. It will then be necessary to set up a standard with which such premises must comply and refuse to recognise any which do not.

In my former special reports I endeavoured to point out very clearly the impossibility of one Inspector and a labourer covering, on foot, the area of about 27 square miles over which the farms and sheds are scattered—a good many of those too requiring special attention being on the outskirts—in order to visit the premises at least twice a week, as should be done to see that reasonable care and cleanliness are continued and your Regulations not infringed. Surprise visits are practically impossible, yet they are the only way in which it is possible to see that many important matters receive attention. When premises are taken in rotation the time of a visit is pretty well known and preparation can be made accordingly. Some means of quicker locomotion is required for the Inspector and man, trams and rail are of little use for the outlying districts. I again recommend this matter to your Committee's notice ; in doing so I do not however in the least wish to imply that the work is neglected. I have been surprised to find how much improvement has been secured and how much work done by your officers under considerable disadvantage.

JOHN C. HEAVEN, D.P.H.

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.				Water.	Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity										
No. 1—FIT.	2	Both Fair.	Improved. sufficient.	7,020 cub. ft. and 8,448 cub. ft.	B.W. Co. Also pump in yard for cleansing.	Fair.	Generally fair.	Good. Clean. Same as in 1905.	18	Said to be scraped occasionally. Cows look fairly clean.	Teats said to be wiped with wet cloth ; udders look clean. Milkers stated to wash hands before milking.	Arrangements for scalding and keeping tins very good ; as in 1905. Farmyard clean and in fair condition.	Overflow from cesspool into ditch to be abolished.	Overflow abolished.
No. 2—FIT.	2	Shed No. 1—(Nearest house), Wood partitions cut down. An entirely new and properly constructed shed erected in place of original No. 2.	Improved. Good.	3,344 cub. ft. 13,824 cub. ft.	B.W. Co. Tap and hose in new shed.	Fair.	Generally fair.	Fair. As in 1905.	25	Said to be scraped once or twice a week. Cows look fairly clean.	Teats not washed. Hands said to be washed. Linen overalls kept, but not used.	Arrangements for tins as in 1905 : fair. Yard in fair condition and clean.	Drainage of new shed runs to cesspool in field near end of shed ; sewage appears to overflow into this field and would be offensive in summer ; this must be rectified.	
No. 3—REASONABLY FIT.	2	Shed near road unfit on account of wood walls and iron roof : good cement floor. Shed near house : floor not too good.	Ventilation and light not too good. Ventilation improved.	5,376 cub. ft.	B.W. Co.	Entirely reconstructed and satisfactory.	Fair.	None.	9	Said to be scraped occasionally.	Hands said to be washed and teats wiped.	Arrangements for tins as in 1905 ; might be improved. Yard in fair condition and fairly clean.	Roof and walls of shed near road should be replaced by tiles and brick or stone. Joints of floor in shed near house should be made good and floor levelled. Tap required in sheds.	
No. 4—UNFIT.	1	In poor condition as regards floor.	Both improved ; fair.	5,040 cub. ft.	B.W. Co.	Fair.	Not too clean.	No milk stored.	8	Cows said to be curry-combed and brushed twice a week.	Teats wiped with hay or a duster. Hands said to be washed No overalls worn.	Arrangements for tins same as in 1905 ; might be improved. Yard surface poor.	Joints of shed floor want making good. Gully in shed should be removed outside to comply with bye-law. Tap required in shed.	
No. 5—UNFIT.	3	No alteration structurally	Both improved ; fair.	5,504 cub. ft. 10,080 cub. ft. 5,760 cub. ft.	B.W. Co.	Fair.	Fair.	No milk stored.	36	Cows said to be groomed occasionally.	Hands said to be washed and teats wiped.	Arrangement for tins same as 1905. Premises much cleaner than 1905. Yard surface very uneven, but kept fairly clean. On the limit of overcrowding.	Upper shed might be improved by heightening front and widening part of it. Gullies in sheds should be removed outside to comply with bye-law. Taps required in sheds. Yard in front of sheds should have proper surface made.	
No. 6—UNFIT.	1	Unfit on account of material.	Both improved.	2,552 cub. ft.	Pump in garden near shed, for animals and swilling shed. Water impure. Well behind dwelling house for washing tins. Water usable.	Fair.	Fair.	None.	8	Cows said to be groomed, look fairly clean.	Hands and teats said to be washed and aprons to be worn.	Arrangements for tins same as 1905 ; not too good. Several improvements on 1905 conditions secured.	Sheds overcrowded. Unfit on account of want of water supply and structure of sheds.	
No. 7—UNFIT.	2 in one line	Bad. No structural alteration.	Ventilation improved. Light poor.	No. 1 4,592 cub. ft. No. 2, 3,276 cub. ft.	Cows drink at river Trym. Well 200 to 300 yards away for washing tins, &c.	Reconstructed, Fair.	Surroundings much cleaner. Proper cleanliness of sheds impossible owing to faulty construction.	None.		Cows said to be scraped occasionally.	Hands and teats said to be cleaned.	These premises are unfit owing to faulty construction of sheds and absence of water supply. The well water is sometimes brackish	Reconstruction or abolition of sheds. Provision of proper water supply.	

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	No.	Sheds				Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work done.
		Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water.									
No. 8—REASONABLY FIT.	1	Poor: no change since 1905.	Improved.	14,400 cub. ft.	B. W. Co. but not in sheds.	Entirely reconstructed. Satisfactory, to sewer.	Sheds not too clean. Yard not clean enough. Manure too close to sheds.	Clean, light, well ventilated.	22	Cows *not* groomed.	Teats said to be wiped with hay off floor (bedding) Hands stated to be washed and washing aprons to be used.	In better condition in some ways than 1905, but improvement still required. Yard in front of shed hollow; stagnant pool near upper end of shed.	Relaying of shed floor; removal of wood front and substitution of stone or brick, with windows. Yard should be levelled. Co's water should be laid on inside shed.	Yard levelled.
No. 9 UNFIT.	3	Bad. No change save louvres fixed.	Ventilation improved. Light poor though slightly improved.	1,456 cub. ft. 2,106 cub. ft. 1,296 cub. ft.	B. W. Co. Well in garden (polluted) used for cows.	Reconstructed. Fairly satisfcatory.	Sheds dirty. Yard not too clean.	Same as in 1905.	16	Cows said to be groomed occasionally.	Hands *not* washed. Overalls said to be worn.	Overcrowded, room for 8, 16 kept. Very slight improvement since 1905.	Reconstruction of sheds. Improvement of yard. Provision of water taps in sheds.	
ORIGINAL—No. 10.		Given up.												
No. 10—UNFIT.	2	Closed shed—Bad. Open shed—Bad.	Ventilation improved. Light defective.	9,920 cub. ft. 5,040 cub. ft.	B. W. Co.	Reconstructed: Satisfactory.	Sheds and yard dirty.	Same as in 1905. Not used.	20	Cows said to be groomed occasionally.	Udders washed when cows are tied up but not when in fields. Hands said to be washed and smocks to be worn.	Some improvement over conditions of 1905, but room for much more.	Shed floors require relaying and proper channeling. Wood front of shed filthy; should be replaced by stone or brick. Yard requires levelling over course of new drain. Co's water required in sheds. Impossible to keep sheds clean with present floors and front	
ORIGINAL No.—11.		Given up.												
No. 11—UNFIT.	2	Poor.	Both improved.	6,912 cub. ft. 7,920 cub. ft.	Well close behind house, water fairly good.	Sheds now drained to channel outside sheds and through gully to pipe drain	Sheds not too clean Yard cleaner. Large collection of manure near end of lower shed.	None used.	26	Cows said to be currycombed weekly.	Teats wiped with clean hay. Hands said to be washed. Smocks provided (worn).	Slightly overcrowded. Slight improvement over 1905.	Shed floors require to be relaid as they are very defective. Wood fronts of sheds should be replaced by stone or brick. More light required in sheds. Manure to be removed further away.	
No. 12—UNFIT	1 at farm 2 in field at Penpole.	Totally unfit. Unfit.	Ventilation improved. Light bad.	1,872 cub. ft.	Well in field, at some distance from houses, water good. No supply to sheds.	Entirely reconstructed: Good.	Fair.	Good.	3	Cows said to be occasionally groomed.	Teats and hands said to be washed.	General condition better than in 1905, but shed at farm unfit. Also the two at Penpole.	Present shed at farm should be closed. Paving of yard should be continued to gateway. Provision of proper water supply.	
No. 13—UNFIT.	2	Fair.	Ventilation defective. Shed stuffy and ammoniacal. Light poor.	20,400 cub. ft. 6,804 cub. ft.	West Gloucester Co.	House drainage and yard drainage improved. Large shed has no channel and drains apparently direct to cesspool. (? Ventilates cesspool into shed).	No accumulation in shed but absence of channel makes drainage poor and floor cannot be properly cleansed. Yard fairly clean.	No milk stored.	19	Stated not to have been groomed for 3 months at least.	Teats said to be cleaned with hay (bedding) or a cloth. Hands stated to be washed and waterproof aprons to be worn.	Slight improvement over 1905. Yard being levelled. Small louvred ventilators inadequate.	Shed floor should have channel. Adequate louvres required. Light to be improved. Co's water to be laid on to shed. Shed drainage to be disconnected from cesspool.	

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit refer to Condition at time of Inspection).

Number of Farm.	No.	Sheds.				Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work done.
		Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water.									
No. 14—UNFIT.	1	Poor.	Both fair.		Well in garden about 40 feet from cesspit privy, occasionally fails.	To field.	Fairly clean.	Fair.						
No. 15—UNFIT.	2	Shed No. 1 (in use), Poor. Shed No. 2, (not now in use), Fair.	Fair. Poor.	11,264 cub. ft. 8,100 cub. ft.	Well under house too salt to use. Water has to be carried from another farm where wells are polluted. Analysis shows pollution.	Reconstructed; fairly satisfactory.	Shed not too clean. Yard in front of shed cleaner. Inner yard filthy.	Light and ventilation good. Redrained to outside gully. Floor joints made good.	14	Doubtful.	Teats and hands stated to be cleaned.	This farm is unfit having no proper water supply. Slight improvement in general conditions over 1905.	Outer yard should be levelled. Inner shed is more satisfactory than outer and should be used. Inner yard must be cleaned and drained. Proper water supply to be provided.	
No. 16—UNFIT.	1	Poor: too much wood; floors defective.	Both fair.	10,944 cub. ft.	B. W. Co. Tap in shed and in dairy.	Fair; to sewer.	Shed and dairy fairly clean. Yard just in front of shed dirty and wet, requires channel course in front of shed.	As in 1905, fairly satisfactory.	11	Cows said to be brushed and scraped.	Teats and hands said to be washed.	No change since 1905, save that cleanliness is more in evidence.	Shed floor to be relaid or replaced by concrete. Channel course to be made in front of shed. Gully in shed to be removed to comply with regulations.	Floor repaired. Channel course made and gully removed outside.
No. 17—FIT.	1	Fair.	Fair.	7,722 cub. ft.	B. W. Co. Not in shed.	Fair; to sewer.	Shed and yard fairly clean.	As in 1905. Seldom used.	10	Said to be done when required.	Udders stated to be wiped and hands washed.	Practically as in 1905.	Water required in shed.	New dairy in good situation, concrete floor, &c., being made. New pedestal W.C. with flush provided.
No. 18—REASONABLY FIT.	1	Fair.	Both fair.	2,592 cub. ft.	B. W. Co. Not in shed.	No alteration; Fair.	Shed and yard fairly clean.	None.	3	Cows stated to be groomed.	Teats and hands said to be washed.	No change since 1905. Arrangements for tins the same.	Water to be laid on in shed.	
No. 19—REASONABLY FIT.	2	Old shed No. 1, disused. Shed No. 2—fair. Shed No. 3—(New). Stone walls, save one end wood; tile roof; good brick floor with channel to outside gully.	Both improved: Fair. Fair.	3,360 cub. ft. 4,004 cub. ft.	B. W. Co. No taps in sheds.	Fair.	Fair.	None.	8	Said to be done occasionally.	Udders and hands said to be washed.	Better than in 1905. Arrangements for tins the same; not too good.	Co.'s water to be laid on in sheds.	
No. 20—REASONABLY FIT.	3	Fair.	Both improved.	16,320 cub. ft. 8,772 cub. ft. 12,000 cub. ft.	B. W. Co. Not in sheds.	Fair.	Fair. Yard by sheds fairly clean but large manure heap in yard not far off.	Good, but not used.	50	Said to be done.	Teats and hands said to be washed. No special dress worn.	In much the same condition as 1905; save ventilation and light of sheds improved. No alteration in arrangements for tins: fair.	Channel in yard wants relaying. Water required in sheds.	Yard channel repaired.
No. 21—UNFIT.	3	Shed No. 1—Not quite satisfactory. Shed No. 2.—Not quite satisfactory. Shed No. 3.—Unsatisfactory.	Both improved. Both improved. Both poor.	7,056 cub. ft. 4,872 cub. ft. 4,590 cub. ft.	B. W. Co. Not in sheds.	Fair.	Not too good. Manure kept under roof near end of Sheds 2 & 3 and allowed to accumulate.	None.	23	Stated to be done twice a week.	Teats said to be washed with water and a cloth. Hands stated to be washed and smock and apron to be worn.	Not much improvement. Arrangements for tins as in 1905.	Cobble part of shed floor No. 1 to be relaid and shed drained to outside gully; boards under tiles to be removed. Sheds Nos. 2 & 3.–Floors to be relaid and properly drained; wood partitions to be removed. Wood front should be replaced by stone or brick. Yard very uneven must be levelled and surface made good. Co.'s water to be laid on to sheds.	Floors of Sheds Nos. 1 & 2 repaired; now in fair condition; loft over has been removed. Shed No. 3 will not be used for milking cows Top of yard levelled and made good; bottom will be done. Special manure pit provided away from yard

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.					Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	work done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water.									
No. 22—UNFIT.	3	Shed No. 1.—Bad. Shed No. 2.—Poor. Shed No. 3.—Fair.	Insufficient. Insufficient (shed stuffy). Insufficient (shed stuffy).	6,318 cub. ft. 7,425 cub. ft. 8,460 cub. ft.	B. W. Co. Not in sheds.	Sheds drain to cesspool with pump.	Not too good.	As in 1905.	20	Cows quarters fairly clean.	Teats said to be cleaned and hands washed.	Practically no improvement over 1905. Same arrangement for tins.	Shed No. 1.—Relay defective floor and make proper channel; replace wood front by stone or brick. Place louvred skylights in roof. Shed 2.—Place louvred skylights. Replace wood wall by brick or stone. Shed 3.—Place louvred skylights. Lay on Co.'s water to each shed.	
No. 23—REASONABLY FIT.	2	Shed No. 1.—Poor. Shed No. 2.—Poor.	Both fair (louvres stuffed with straw). Both fair (louvres stuffed with straw).	7,072 cub. ft. 3,570 cub. ft.	From spring in field pumped to cistern at house.	Partially reconstructed so as to clear pond originally fouled.	Not too good. Collection of manure in yard in front of shed No. I.	Not used.	18	Said to be groomed occasionally.	Udders stated to be washed or wiped. Hands said to be washed and gowns to be used and washed weekly.	Slight improvement over 1905 Same arrangements for tins. Slight overcrowding of sheds.	Louvres to be kept open. Remove grain pit from shed No. 1; wood front should be replaced by stone or brick. Yard requires levelling.	Yard levelled.
No. 24—UNFIT.	3	All three poor.	Ventilation improved but insufficient. Light in shed near house poor.	6,720 cub. ft. 6,624 cub. ft. 7,182 cub. ft.	B. W. Co. but not in sheds.	Drainage partially reconstructed. Fair.	Sheds very dirty. Yard cleaner but very uneven and impossible to keep clean.	Fair.	45	Said to be groomed occasionally.	Teats said to be wiped and hands washed.	Some improvement over 1905. Arrangements for tins not altered; fairly good.	Larger louvres in all sheds. Improved light required in shed near house. Lower yard specially requires levelling tending to sink where former manure pit was and to collect foul water there Paving of yard by dairy requires relaying. Water to be laid on to sheds.	Yards being gradually levelled—still far from good. Floor of upper shed relaid with channel opening into yard; drain under yard made. Yard paving by dairy being relaid with grano lithic paving.
No. 25—UNFIT.	2	Shed No. 1.—Bad. Shed No. 2.—Poor. Stone walls rough; brick floor with channel to yard surface; tile roof.	Bad. Bad.	6,358 cub. ft. 1,547 cub. ft.	B. W. Co. In field 300 to 400 yards away.	None to Shed 1. Shed 2 to surface.	Dirty. Manure heap close in front of sheds. Large manure heap against wall of shed No. 2, under windows.	None.	11	Said to be done.	Udders stated to be cleansed and hands to be washed.	Unfit in present condition.	Manure to be removed. New floor required to shed No. 1 Light and ventilation to both sheds. Drainage to be arranged.	New floor laid; light and ventilation provided. Sheds drained satisfactorily.
No. 26—REASONABLY FIT.	1	Fair, but too much wood in construction and too low.	Fair.	3,024 cub. ft.	B. W. Co. Not in shed.	Fair.	Shed and yard fairly clean.	Fair.	6	Said to be done.	Udders said to be cleansed and hands washed.	Practically as in 1905. One cow too many.	Water required in shed.	
No. 27—REASONABLY FIT.	3	Fair.	Fair.	3,800 cub. ft. 4,752 cub. ft. 5,616 cub. ft.	B. W. Co. in field 400 yards away.	Sheds all drain over field. Proper E.C. in place of open cesspit privy.	Sheds and yard fairly clean	None.	27	Groomed, combed and brushed WHEN REQUIRED.	Udders said to be wiped and hands cleansed.	Arrangements for tins as in 1905. Sheds in better condition than in 1905. Polluted well disused. Co.'s water too far off. Slightly overcrowded.	New pitching with proper channel required in yard in front of sheds. Sheds to drain to cesspit with pump.	Yard levelled and cemented several feet in front of sheds which all drain out to proper channel courses, running round yard, with catchpits and on to cesspool. Condition much improved thereby.
No. 28—UNFIT.	2	Both quite unfit.	Bad.	2,502 cub. ft. 1,368 cub. ft.	Rain water caught in barrels.	To field in front.	Dirty.	None.	1	No information.	No information.	Quite unfit for purpose.	Abolition.	

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds					Drainage.	Cleanliness	Dairy.	No. of Cows	Grooming of Cows	Milking Arrangements.	Remarks.	Work Required.	Work Done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water									
No. 29—UNFIT.	2	New shed very good. Stone walls, tile roof; concrete floors, and brick on concrete; properly drained. Old Shed—Fair.	Ventilation good, light fair but should be at back of cows as well as heads. Somewhat improved.	19,000 cub. ft. 13,760 cub. ft.	No proper water supply. Both wells polluted. Some iron soft water tanks.	To rhine as before.	Bad except new shed. Old shed filthy floor and front wood wall. Great pile of manure in front of this shed practically blocking front openings. Yard by new shed not too clean; yard between new and sheds a filthy quagmire; yard in front of old shed hollow and very dirty.	Fair	27	Cows said to be cleaned down occasionally.	Udders said to be dry-wiped with cloth or clean hay; hands to be washed and smocks to be worn.	Unfit as not having proper water supply. Practically no improvement in conditions of general cleanliness, &c. Arrangements for tins as in 1905: as there is a boiler for chaff machine it should be used for scalding tins.	Provision of proper water. Removal of manure and general cleansing of old shed and yards. Levelling and pitching of faulty yards.	
No. 30—UNFIT.	2	Shed No. 1.—Fair. Shed No. 2.—Fair.	Both improved: Fair. Both improved: Fair.	6,075 cub. ft. 1,760 cub. ft.	Well often dry and open to surface pollutions.	Fair, but gullies should be outside sheds.	Sheds fairly clean. Yard ditto.	None.	14	?	Teats rubbed with dry cloth. Hands said to be washed.	Slight improvement over 1905, but farm does not comply with Regulation as to water supply and drainage.	Wood front of shed should be replaced by stone or brick. Gullies to be removed outside shed if possible. Proper water supply to be provided.	Yard levelled.
No. 31—UNFIT.	2	Shed No. 1.—Poor. Shed No. 2.—Poor	Light and Ventilation poor.	12,441 cub. ft. 3,549 cub. ft.	B. W. Co. Taps in sheds.	Fair: to sewer. Gully in shed No. 1.	Sheds fairly clean save wood front of No. 2. Yard fairly clean.	None.	6	Said to be groomed occasionally.	Teats stated to be rubbed with cloth and hands to be washed. Old sacking apron for milking.	Practically no alteration since 1905. Tins washed and stored in old wooden coach-house with defective stone floor and centre gully; arrangement bad.	Wood in walls of sheds should be replaced by brick or stone. Gully should be removed outside shed to comply with bye-law. Proper arrangements for cleansing and storing tins required	Closed since inspection.
No. 32—UNFIT.	1	Poor on account of wood sides and front; floor fair.	Ventilation improved; More Light required.	3,570 cub. ft.	Well supplied by spring in field; water found good.	Requires amendment. Foul pool just outside shed.	Fair in shed. Manure in yard.	None.	5	Said to be done occasionally.	Teats said to be wiped and hands to be washed	Slight improvement. Arrangements for tins fair. Slight overcrowding in shed.	Shed should be reconstructed. Yard paving from pigsties down in front of shed to be relaid and proper channel made to take shed drainage. Manure to be removed.	Drainage amended.
No. 33—FIT.	1	Good. New shed: brick walls, cement floors roughed, channel to outside gully; tile roof; fodder walk.	Both good.	3,570 cub. ft.	B. W. Co. Not in shed.	Fair, to cesspool and open ditch.	Shed fairly clean and manure fairly removed; Ground round shed muddy and soft.	None.	6	Said to be attended to, Cows not too clean.	Udders and hands said to be washed	Improved. Old bad shed abolished, and cesspool overflow dealt with.	Ground round shed requires hardening with stone or paving. Water required in shed.	Ground round shed steined. Notice to amend drainage.
No. 34—UNFIT.	2	Shed No. 1.—Poor. Shed No. 2.—Fair.	Fair. Fair	4,480 cub. ft. 5,616 cub. ft.	Well (recently protected). Water found good.	Yard drains near well reconstructed. Shed and farm yard drainage require amendment.	Sheds and yard fairly clean.	None.	18	Said to be groomed; cows' quarters fairly clean.	Teats and hands said to be washed and white coat to be worn.	Arrangements for tins same as in 1905. Slight overcrowding.	Shed No. 1.—Floor to be relaid with channel to outside gully, if use continued. It would be better to lengthen. Shed No. 2 by taking in adjoining building which could be made into good shed and to discontinue No. 1 Yard very uneven tending to uncleanliness: to be levelled and properly drained.	Yard levelled.

FARMS, ATTACHED DAIRIES AND COWSHEDS, 1908.

(The Term Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.					Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work Done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water									
No. 35—UNFIT.	1	Bad. All wood including floor drains to open pit.	Bad.	504 cub. ft.	B. W. Co. Not in shed.	Defective.	Shed not too clean. Much manure close by.	None.	2			Quite unfit; but he is said only to supply neighbours. Overcrowded, not room for one cow.	Entire reconstruction if used for producing milk for sale.	Abolished.
No. 36—REASONABLY FIT.	4	Shed No. 1.—Poor: good floor and drainage: loft over. Shed No. 2.—Adjoining. Shed No. 3.—The same: wood front too low. Shed No. 4.—Stone, tile roof, defective floor.	Both poor. Both poor. Both poor. Both fair.	1,764 cub. ft. 3,960 cub. ft. 3,885 cub. ft. 9,044 cub. ft.	B. W. Co. Not in sheds.	House, 2 sheds, and yard drain to cesspool with pump. Recently reconstructed; satisfactory. Shed No. 3 drains to surface by door	Sheds not too clean; yard fairly clean. Manure heap near Shed No. 3.	Not used.	32	Said to be done occasionally.	Udders stated to be wiped and hands washed.	Tins scalded and kept in open.	Drainage of Shed No. 3 to be connected to drain and floor to be relaid. Manure to be removed. Water to be laid on to sheds.	Shed drainage amended.
No. 37—UNFIT.	1	Bad. Entirely of wood, iron roof; floor of cobbles in very bad condition.	Both poor.	3,640 cub. ft.	B. W. Co. Not in shed.	Shed drains by channel to gully (? ultimate disposal, probably sewer).	Sheds very dirty. Yard ditto. Large heap of manure just outside shed and several buckets of pigwash close to end of shed.	At house, badly ventilated. Not used.	9			Overcrowded: room for six. Totally unfit for use for production of milk for sale. Three cows too many, only room for 6.	Entire reconstruction.	Abolished.
No. 38—UNFIT.	1	Fair. Stone walls, loft over, brick floor with channel to gully in shed.	Both fair.	3,840 cub. ft.	B. W. Co. and Well (not used for milk purposes.)	Drains to cesspool with pump, in orchard.	Shed and yard fairly clean.	Not used.	1	Said to be done when required.	Stated that udders are wiped and hands cleansed	Tins scalded at house and kept in open under cover. Loft over shed objectionable. Fairly satisfactory on whole.	Water required in shed.	Abolished.
No. 39—UNFIT.	3	Shed No. 1.—(At back of premises)—Bad. Rough stone wall (back wall giving outwards), tile roof, brick and stone floor in bad condition. Sheds Nos. 2 & 3.—Old stables, cobble floors, bad drainage. Both bad. New Shed.	Both poor. Both bad.	5,020 cub. ft. 5,040 cub. ft. 7,992 cub. ft.	B. W. Co. Not in sheds.	Shed No. 1, to gully in shed. Sheds Nos. 2 & 3, to gullies in sheds	Sheds not too clean. Heap of foul manure near door of Shed No. 1.	None.	13	Said to be done if required.	Udders said to be wiped and hands washed.	Tins scalded. Premises unfit in present condition.	Shed No. 1.—Walls repaired and made smooth; relaying floors to outside gully; improve light and ventilation; replace superfluous wood at end by brick. Sheds Nos. 2 & 3. Floors require relaying and redraining; light and ventilation required. These two sheds have stable between opening into each. Water to be laid on to sheds.	New Shed in place of Shed No. 1. Remaining shed improved and cut off from stable Light and ventilation good; floor relaid and drained. Tap placed in each shed. Shed No. 3 abolished. Properly constructed cesspool with chain pump.
No. 40—UNFIT.	2	Shed No. 1—Fair. Stone walls, tile roof, stone floor fair with channel to gully at door. Shed No. 2—Poor. Stone walls 3, one wood, brick floor on concrete.	Both good. Both good.		B. W. Co. Not in sheds.	Drains run to cesspool in field furnished with pump; recently reconstructed.	Sheds and yard fairly clean.	None.	8	Said to be done occasionally.	Teats said to be wiped and hands washed.	Premises in fair condition; badly situated.	Water required in shed.	
No. 41—UNFIT.	1	Fair. Stone walls, tile roof, wood floor where cattle lie, stone with channel behind them.	Light sufficient. Ventilation defective; shed very close and offensive.	9,828 cub. ft.	B. W. Co. Not in shed.	Floor channel runs to gully in shed and by pipe drain to sewer.	Shed dirty. Yard surface fairly good and fairly clean. Several buckets of pigwash close to shed.	None.	5	Done occasionally.	Teats said to be wiped and hands washed.	If kept clean and requirements carried out this shed will be fairly satisfactory. Tins cleansed at home.	Improve ventilation. Replace wood part of floor by roughed cement; replace or relay defective stone floor to outside gully. Keep pig barrels well away from shed. Tap to be placed in shed.	Outside gully provided.

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.					Drainage.	Cleanliness.	Dairy	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work Done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water									
No. 42—UNFIT.	2	Shed No. 1 (next road), Bad. Shed No. 2 (in yard), Poor. Wood, tile roof, cement floor with channel to ditch at end of shed.	Both bad. Both poor.	1,440 cub. ft. 693 cub. ft.	B. W. Co. But not in sheds.	Shed 1 and house to cesspool. Shed 2 to ditch.	Sheds and yard fairly clean.		4	Said to be done.	Teats said to be wiped with damp cloth and hands to be washed.	These sheds are structurally unfit. Tin arrangements same as in 1900; not good. Slightly overcrowded.	Reconstruction of sheds.	
No. 43—UNFIT.	1	Bad. All walls wood and iron save back wall.	Both might be improved.	2,048 cub. ft.	B. W. Co. Not in shed.	By channel to cesspool at end of shed.	Shed fairly clean. Yard poor.		3	Said to be groomed occasionally.	Teats said to be wiped with damp cloth and hands to be washed.	Unfit for the purpose. Tins scalded in back kitchen and hung on hedge.		
No. 44—UNFIT	1	Fair: save floor which is uneven.	Fair.	4,800 cub. ft.	B. W. Co. Laid on to shed.	Channel to gully in shed and on to sewer.	Fair.	New dairy being made opening into back kitchen and also into coal house, floor tile and stone with open joints, drains to centre gully. Ventilation & light moderate.	6	Said to be done.	Teats and hands said to to be washed.	In much the same condition. Dairy should not open into coal house or back kitchen.	Dairy floor to be made impervious and gully removed outside; connection with coal-house and back kitchen to be closed. Shed gully should be outside.	Cut off from living rooms.
No. 45—REASONABLY FIT	1	Fair.	Fair.	3,360 cub. ft.	B. W. Co. Not in shed.	To gully in shed and on to sewer	Fair.		5	?		In fair condition. Ventilation and light improved. Tins kept in back yard close to fowl run and open to fowls' attentions.	Water to be laid on in shed. Shed gully should be outside. Better arrangements for keeping tins. Bricks in yard to be relaid.	Light and ventilation improved.
No. 46—REASONABLY FIT	3	Shed No. 1.—(in yard), Brick walls, brick floor sloped to gully in centre; tile roof; Fair. Sheds Nos. 2 and 3 Not improved.	Fair.	Shed No. 1: 2,183 cub. ft.	B. W Co. Not in shed.	To sewer.	Fair; both shed and yard.		2	Very seldom done. Cows look fairly clean.	Teats said to be wiped and hands washed.	In fair condition. Arrangements for tins as in 1900, fair.	Water to be laid on in shed. Gully should be removed outside.	
No. 47—UNFIT.	Row of sheds round yard.	Stone back walls, rough uneven cobble stone floors, tile roof; open fronts to some. Poor.	No top ventilation. Light bad.	1,200 cub. ft. 1,200 cub. ft.	Well: analysed 1897 and found good.	Sheds drain to surface of yard and so to pond in yard.	Both sheds and yard kept as clean as possible under circumstances.	Attached to house, seldom used. Clean, Ventilation good. Floor swills to hole in wall and to surface outside.	27	Said to be done when required.	Teats and hands stated to be washed.	Premises are not fit in present condition.	Sheds require reconstruction; or at least proper flooring and drainage, more light and ventilation. Yard cobbled but very uneven, requires levelling and relaying.	
No. 48—UNFIT.	1	Poor. Brick and stone walls, corrugated iron roof, brick and stone floor with channel to outside gully.	Both good.	67,300 cub. ft.	Rainwater collected in large galvanized iron tank. Magistrates allowed this after owner had been summoned for water supply. Water for house from well in quarry, 100 yards off; water analysed and found good.	By outside gully and pipe drain, intercepted & ventilated, to cesspool about 30ft. away.	Fair.	Separate building Brick walls plastered. Stone floor with centre gully. Light and ventilation good. Boiler in building.	18	Said to be groomed occasionally.	Hands stated to be washed and teats wiped	Not well adapted for purpose and there is not reasonably adequate water supply. Tins cleansed and kept in dairy.	Shed floor requires attention.	

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.					Drainage.	Cleanliness.	Dairy.	No. of Cows	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work Done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water.									
No. 49—UNFIT.	3	Shed No. 1, at end of yard: stone walls, tile roof, stone floor—fair. Shed No. 2, right side of yard: too much wood in front, floor in bad condition, galvanized roof. Bad. Shed No. 3, near gate: stone walls save wood front, tile roof, good stone floor.—Fair.	Both fair. Both poor. Both fair.	13,104 cub. ft. 4,320 cub. ft. 7,632 cub. ft.	B. W. Co. But not in sheds.	Sheds No. 5, 1 and 2 to channel in front and pipe drain to proper cesspool. Shed No. 3 to gully in shed.	Sheds fairly clean. Yard very uneven but kept reasonably clean	Stone walls plastered and limewashed. Stone floor drains to outside gully. Light and ventilation good. Clean. Seldom used. Joints of floors open.	60	Said to be done.	Teats said to be washed, also hands.	In much the same condition as formerly. Arrangements for tins fair; tins scalded and kept under open shed on stone. Overcrowded, 35 cows too many, room only for 25.	Yard to be levelled and proper surface made. Wood fronts of sheds should be replaced by brick. Water to be laid on in sheds. Shed No. 2 should be abolished and new shed constructed. Abate overcrowding. Repair dairy floor.	Entirely new shed, brick walls, tile roof, concrete floor, cement and brick mangers, fodder walk. Light and ventilation good Skylight louvres, end louvres and ridge ventilation Floor too flat and without channel course (to be provided.) This shed will replace Shed No. 2.
No. 50—UNFIT.	3	Shed No. 1.—Near gate: stone walls, wood front, tile roof, cobble floor in bad condition. Shed No. 2.—Ditto. Shed No. 3.—On left of yard at top: stone walls and floor, stone and wood front, tile roof	Shed No. 1, Both fair. Shed No. 2, Both fair. Shed No. 3, Both bad; shed very stuffy.	15,120 cub. ft. 6,300 cub. ft. 8,820 cub. ft.	B. W. Co. But not in sheds.	All sheds drain by channels to outside gullies and by intercepted and ventilated drain to sewer.	Sheds fairly clean. Yard cobbled and channelled and fairly clean.	At rear of farm house. Walls plastered and limewashed pennant stone floor, joints bad; light and ventilation good; drains to outside gully; clean. Co.'s water. Yard here well paved.	50	Said to be done. Cows fairly clean.	Teats said to be wiped and hands washed.	In much the same condition as 1900, save wear and tear. Tins washed in house, kept in yard by dairy.	Floors of all sheds require repair. Light and ventilation might be improved in all sheds especially No. 3. Co's water to be laid on in all sheds.	Light improved. Floor of upper Shed repaired and channelled to outside gully; floor still unsatisfactory.
No. 51—UNFIT.	1	Fair. Stone walls, tile roof, brick floor with channel to outside gully.	Both poor.	6,968 cub. ft.	B. W. Co. In shed.	To outside gully and sewer; reconstructed since 1901.	Shed fairly clean.	None.	9	Said to be done occasionally.	Udders stated to be cleaned and hands washed.	Much the same as in 1900. One shed has been abolished. Overcrowded, 3 cows too many Arrangements for tins poor.	Light and ventilation might be improved. It would be better to discontinue use of shed.	
No. 52—REASONABLY FIT	1	Fair. Brick walls, tile roof, wood and stone floor.	Light and ventilation fair.	8,064 cub. ft.	Well: Water found good on analysis.	Floor channel to outside gully and sewer.	Fairly clean. Yard in fair condition.	None.	9	Groomed occasionally.	Hands and teats said to be washed, and aprons to be worn.	No alteration since 1900. No water in shed. Arrangements for tins fair.	Wood part of floor to be replaced by cement or stone.	
No. 53—UNFIT.	4	Shed No. 1.—Nearest house, Fair; all stone, ceiled, tile roof, stone floor. Shed No. 2.—Fair: Similar to No. 1. Shed No. 3.—Similar to No. 1. Shed No. 4.—Similar: floor in bad condition.	Ventilation in all sheds fair. Light in all bad.	Shed No. 1, 4,536 cub. ft. Shed No. 2, 9,396 cub. ft. Shed No. 3, 3,780 cub. ft. Shed No. 4, 6,120 cub. ft.	B. W. Co. Not in sheds.	Sheds drain to outside gullies and pipe drain to cesspool in field, furnished with chain pump.	Sheds fairly clean. Yard uneven & not too clean.	None used.	40	Said to be done.	Hands and teats said to be washed.	No special alteration. Shed No. 4 in use since last inspection. Yard is being levelled. Arrangements for tins as before—fair.	More light required in all sheds. Floor of Shed No. 4 to be relaid and drain of stable which now enters shed channel to be cut off. Yard to be levelled.	Yard levelled. New floor to one Shed.
No. 54—UNFIT.	1 (combined with stable)	Bad. Brick walls, tile roof, brick floor, loft over.	Light fair. Ventilation poor.	1,872 cub. ft.	B. W. Co. Not in shed.	Shed drains to gully and sewer	Shed and yard fairly clean.	None.	6	Said to be done.	Teats stated to be wiped and hands washed.	No improvement, shed unfit being used as stable. Arrangements for tins the same. Overcrowded, 3 cows too many	Stable to be removed from shed. Loft to be abolished. Yard paving to be repaired. Water to be put in shed.	

FARMS, ATTACHED DAIRIES, AND COWSHEDS, 1908.

(The Terms Fit, Reasonably Fit, and Unfit, refer to Condition at time of Inspection).

Number of Farm.	Sheds.					Drainage.	Cleanliness.	Dairy.	No. of Cows.	Grooming of Cows.	Milking Arrangements.	Remarks.	Work Required.	Work Done.
	No.	Structural Condition.	Light and Ventilation.	Cubic Capacity.	Water.									
No. 55—REASONABLY FIT	1	Poor. Stone walls and floor, tile roof ceiled under.	Ventilation fair. Light poor.	23,166 cub. ft.	B. W. Co. Not in shed.	Sheds by channels to outside gullies and pipe drain to sewer.	Shed and yard not too clean. Yard surface uneven.	None in use.	23			In much the same condition. Tins washed and kept in badly ventilated house near pigsties, with cement floor draining to cesspit; building used for slaughtering or hanging carcases. Premises altogether not very suitable.	Shed floor to be repaired and light improved. Yard to be levelled and good surface made. Proper arrangements to be made for tins. Water to be laid on to shed.	
No. 56—UNFIT.	1	Poor. Long shed divided into two by wall with communication over, stone walls, tile roof ceiled under, cobble floor.	Both fair.	1st Half: 5,022 cub. ft. 2nd Half: 4,374 cub. ft.	B. W. Co. Not in shed.	Channels to outside gullies and on to sewer.	Shed and yard fairly clean.	At house; floor poor; light and ventilation fair. Also used as a store room for odds and ends.	15	Said to be done.	Teats and hands said to be washed.	No change.	Shed, floors and channels to be repaired. Yard to be levelled. Water to be put in sheds. Dairy floor to be repaired and room not to be used for other purposes.	
No. 57—UNFIT.	Row of Sheds	Fair. Brick walls, tile roof, brick floor slightly defective.	Both fair.	14,280 cub. ft.	B. W. Co. Not in shed.	Channel to inside gullies and pipe drain to cesspool which is ventilated and furnished with pump; drains disconnected & ventilated.	Shed and yard fairly clean.	None.	8	Done occasionally.	Teats said to be wiped and hands to be washed	No change; in fair condition. Arrangements for tins fair.	Shed floor requires attention. Water tap to be put in the centre of shed. Gullies should be outside to comply with Regulations.	
No. 58—UNFIT.	2	Both Poor. Both stone walls back and sides, wood fronts, tile roofs, defective stone floors.	Both fair.	Shed No. 1: 4,264 cub. ft. Shed No. 2: 6,150 cub. ft.	Well: Water analysed and found good.	Channels to outside gullies and by disconnected and ventilated pipe drain to sewer.	Sheds not too clean. Yard fairly clean.	Dairy floor defective. Yard by dairy paving defective.	2	No one could give information.		In much the same condition. Arrangements for tins fair.	Floors of sheds to be repaired. Dairy floor and yard by dairy to be made good.	
No. 59—UNFIT.	1	Bad. All wood: bad brick floor.	Both bad.	1,936 cub. ft.	B. W. Co. Not in shed.	To gully and pipe drain.	Not too clean.		2	Not stated to be done.	Teats said to be cleaned. Hands not washed. Warned of bye-law.	This shed is totally unfit for the purpose	Entire reconstruction.	
No. 60—UNFIT.	1	Poor. Rough stone walls, tile roof, fair brick floor.	Both fair.	2,880 cub. ft.	B. W. Co. Not in shed.	Shed drains to outside gully and on to sewer.	Fair. Yard in poor condition as to surface.		5	Cows look fairly clean.	Teats and hands said not to be washed. Warned of bye-law.	Practically no change. Situation not desirable.	Water to be in shed. Yard to be repaired.	

AMBULANCE SERVICE AVAILABLE IN THE CITY OF BRISTOL.

Property of	Address.	Telephone No.	Telegrams.	Class of Cases Removed.	Office Hours.	Method of obtaining Ambulance.
Corporation of Bristol	40 Prince Street	789	Hygiene	Fevers	9.30–5 Except { Sat., 9.30-1 Sun., 12-1	By Notification to the M.O.H.
Bristol City and Marine Ambulance Corps	71 Redcliff Hill	1228 (calls by day and night)	Ambulance, Bristol	All except Infectious Diseases	Day and Night	By communicating with the Hon. Sec, Capt. J. F. Trezise, 71 Redcliff Hill.
Ditto ditto	Seamen's Institute, Prince Street	1694 (calls by day and night)	Ditto	Ditto	Ditto	Ditto, or to Rev. Norman de Jersey, Seamen's Institute, Prince Street.
St. John Ambulance Brigade (City of Bristol Corps)	Unity Street, St. Philip	2400 (Ambulance)	Invalid, Bristol	Ditto	Day and Night	By communicating with the Hon. Sec., J. Maynard Froud, Esq., Transport Station, Unity St., St. Philip.
Bristol Tramway & Carriage Company	Brunswick Square Depôt	333	Cab (Brunswick Square)	Special Cab retained for Infectious Diseases	Ditto	Ring up or Wire.

The St. John Ambulance Brigade deals with the Street Casualties ; the Bristol City and Marine Ambulance Corps deals with the Dock work, Bristol South, and Subscribers.

Health Department.

AMBULANCE RECORD.—1908.

INFECTIOUS CASES REMOVED.

Month.	Cases Removed (Total).	Cases Removed (Average Daily).	Journeys.	Mileage (Total).	Mileage (Average Daily).
January ..	68	2·1	52	690	22·2
February ..	54	1·8	41	541	18·6
March ..	61	1·9	49	676	21·8
April ..	75	2·5	53	694	23·1
May	69	2·2	54	666	21·4
June ..	57	1·9	48	627	20·9
July ..	76	2·4	50	680	21·9
August ..	55	1·7	42	540	17·4
September	87	2·9	59	772	25·7
October ..	115	3·7	71	970	31·9
November	97	3·2	65	887	29·5
December..	70	2·2	50	675	21·7
(Totals)	884	2·37 (Average Daily).	634	8,418	23·00 (Average Daily).

DISINFECTION STATION AND AMBULANCE SERVICE.

Considerable alterations and additions have been made at the Disinfection Station, which is on the site formerly occupied by the City Small-pox Hospitals in St. Philip's Marsh. The surrounding wall has been raised to a uniform height of 7 feet, and the buildings now comprise :—

(1) Disinfecting Block containing two Steam Disinfecting Machines, Receiving Room, Clearing Room, and a Boiler House.

These rooms have been erected for some years, and are sufficient for the purpose, except that the Boiler House would be more convenient if a little larger No laundry is attached, as this was deleted from the original plans.

(2) The new stable buildings, completed in 1906, comprise stalls for 8 horses and 2 loose boxes. The stabling is of modern construction, fairly lighted and well ventilated, and has enough accommodation for the ambulance horses and the horses used in the disinfecting carts. Near to the stable is a small forage room, a harness room, which is also to be used as a mess room, and offices.

The stable was so designed that conversion to a motor house would be simple and inexpensive.

The old sheds have been enlarged and adapted to serve as coach house and cart shed.

It is contemplated to remove the Ambulance Service from Clift House Stables, where there is cottage accommodation for both the ambulance driver and the stableman, and also, at the adjacent hospital, accommodation for the ambulance nurse.

In connection with this transference the Health Committee has approved plans for accommodation as set forth :—

CARETAKER.—(Ground Floor)—Sitting-room and office, kitchen, scullery, offices, &c.

(First Floor)—One bedroom and use of bathroom, &c.

AMBULANCE NURSE.—(First Floor)—One sitting-room, one bedroom, and use of bathroom, &c.

ISOLATION ROOMS, under the Infectious Disease (Prevention) Act—Four rooms, viz. :—

(Ground Floor)—Kitchen sitting-room, scullery, bath room, offices.

(First Floor)—Two bedrooms.

All the above accommodation will be provided in one building, the Isolation Rooms being self-contained and under the supervision of the Caretaker.

At the end of 1908, the work was well in hand.

VACCINATION.

The 1907 returns are the last complete ones available. I am indebted to the Clerk of the Bristol Union for the following information:—

	BRISTOL UNION.
Vaccination.	
Number successfully vaccinated up to 31st January, 1908......	5,505
Insusceptible..........................	19
Died unvaccinated	737
Postponed by Medical Certificate	224
Certificates of Conscientious Objection	471
Removed to Districts, the Vaccination Officer of which has been duly apprised	217
Cases left and not traceable.........	819
In abeyance	942
Births registered in 1907	8,934
*Percentage of successful vaccination to births	61·62

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* A special return of Certificates of successful primary vaccinations at all ages received in each of the calendar years 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, and 1908 was furnished at the request of the Local Government Board, and showed as follows:—Certificates received in 1900, 5,917; in 1901, 5,776; in 1902, 6,838; in 1903, 6,972; in 1904, 7,413; in 1905, 7,253; in 1906, 6,870; in 1907, 6,464; and in 1908, 5,092.

PAUPERISM.

***Bristol Union.**—Summary of persons relieved on the following dates: the first named date (1st April, 1898) being the date of the formation of the Union for the City and County of Bristol.

	1st April, 1898.	1st April, 1899.	1st April, 1900.	1st April, 1901.	1st April, 1902.	1st April, 1903.	1st April, 1904.	1st April, 1905.	1st April, 1906.	1st April, 1907.	1st April, 1908.	1st April, 1909.
In Workhouses and Children's Homes	2,357	2,281	2,305	2,408	2,355	2,388	2,513	2,578	2,528	2,653	2,745	2,855
In Institutions, &c.	114	116	127	127	148	155	149	159	146	148	135	125
In Lunatic Asylums	826	824	810	830	847	856	859	869	875	881	863	831
Out-door poor ...	7,796	6,409	5,847	5,837	5,845	5,829	6,030	6,425	6,116	5,921	5,696	5,585
	11,093	9,630	9,089	9,202	9,195	9,228	9,551	10,031	9,665	9,603	9,439	9,396
Weekly cost of Out-relief	£724 6 1	£683 14 11¾	£644 14 7	£662 18 4¾	£697 16 9½	£710 0 10½	£746 4 3½	£803 19 8	£792 12 2½	£765 14 1½	£756 8 3	£765 13 4

* The Union was much increased in area and population in October, 1904.

Medical Officer of Health's Department.

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Clerical Returns.

Number of letters and documents received at and despatched from the Office.

	1904 Estimated for Special Report.		1905		1906		1907		1908	
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In	Out
M.O.H. ..	4,481	5,490	10,603	15,104	9,124	8,727	9,417	8,475	9,000	8,144
Infectious Disease	20,037	36,605	14,280	19,859	12,488	17,990	14,519	20,874	11,496	16,177
Hospitals	2,816	3,465	3,025	2,810	3,214	3,055	4,746	3,833	3,290	3,111
Inspectors	3,485	2,656	6,250	5,959	5,802	4,505	5,943	4,201	4,124	3,744
Port ..	633	1,058	962	1,003	1,056	957	1,768	1,905	1,337	1,670
TOTAL ..	31,452	49,274	35,120	44,735	31,684	35,234	36,393	39,338	29,247	32,846
	80,726		79,855		66,918		75,731		62,093	

In 1904–05, a large amount of correspondence and the distribution of many thousand Circulars in connection with the adoption of Notification of Phthisis, caused a considerable increase in the output figures.

1908—1909.

Baths and Wash-houses.

The following figures are returned for the year's work :—

Year ended 25th March, 1909.	No of Bathers. Swimming Baths.	Private Baths.	Women Washing Clothes.
" Victoria," Clifton (Baths only)	18,136	2,219	...
" Royal," Kingsdown (Baths only)	37,760	...	...
Broad Weir	34,700	26,315	15,078
Mayor's Paddock, New Cut	24,199	25,328	14,056
Jacob's Wells (Baths only)	50,124	20,973	...
Rennison's (Swimming Bath only)	15,629	...	...
Barton Hill	64,461	29,099	...
Eastville Park (Swimming Bath only)	17,908	...	...
Victoria Park (Swimming Bath only)	11,433	...	...
Greville Park (Swimming Bath only)	10,966	...	...
Total ...	285,316	103,934	29,134

1907-8	249,982	102,275	29,641
1908-9	285,316	103,934	29,134
	+ 35,334	+ 1,659	− 507

(Up to March 25th, 1909).

Particulars supplied by Mr. J. KANE.

Mr. Edward Russell, B.Sc., F.I.C., City Analyst, has kindly supplied the following returns for 1908.

"FOOD AND DRUGS ACTS."

During the year 1,303 samples were submitted for analysis ; of these, 1,300 were received from the Inspector, two were sent by the Board of Guardians, and one was sent by a private individual.

The following Tables show the nature and number respectively of the samples submitted, with the number reported genuine and the number adulterated :—

Number of samples examined	1,303
,, ,, ,, genuine	1,170
,, ,, ,, adulterated.. ..	133

Article.	Number Examined	Number Genuine	Number Adulterated.	Per cent. Adulterated.
Milk	640	539	101	15·78
Milk (skim)	7	6	1	14·3
Butter	308	293	15	4·87
Margarine	32	26	6	18·7
Cheese	26	26	0	0
Cream	3	3	0	0
Lard	10	10	0	0
Spirits	50	45	5	10·6
Sugars	23	21	2	9·5
Wheaten and other Flours	48	48	0	0
Vinegar............	19	18	1	5·2
Coffee	19	19	0	0
Coffee and Chicory Extract	2	2	0	0
Cocoa and Chocolate	6	6	0	0
Pepper	14	14	0	0
Mustard	10	9	1	10·0
Mustard Compound	2	2	0	0
Tea	10	10	0	0
Mineral Waters	19	19	0	0
Cider	1	1	0	0
Meats and Soups....	3	3	0	0
Blanc Mange Powder	2	2	0	0
Egg Powder........	1	1	0	0
Lemonade Powder ..	1	1	0	0
Desiccated Cocoanut	1	1	0	0
Sponge Cake	1	1	0	0
Ground Almonds....	1	1	0	0
Baking Powder	2	2	0	0
Ginger Bread	1	1	0	0
Drugs	41	40	1	2·4
	1303	1170	133	10·2

The working of these Acts in the City of Bristol is entrusted to an Inspector acting under the Watch Committee and is not administered by the Health Committee.

METEOROLOGICAL OBSERVATIONS AT BRISTOL, 1908.

JANUARY.—The year commenced with severe frost, but a thorough thaw set in on the 6th. Frost, however, again returned on the 10th, but again it was to be of short duration, some very warm weather being experienced during the third week. From then to the close, temperature fluctuated very much and a good deal of fog prevailed. Altogether, the month was very seasonable, although unusually free from the rough and stormy conditions so often associated with this time of year.

The mean temperature (max. and min.) was 37 degrees, being nearly 2 below the average. The maximum reading was 53 degrees on the 17th, and the minimum 20 degrees on the 6th—an extreme range of 33 degrees. The warmest day occurred on the 18th, with a mean temperature of 49 degrees; and the coldest on the 5th, mean 22·5 degrees. Seventeen frosty nights were experienced.

The total rainfall varied from 1·76 inches at Clifton to 1·83 inches at Frampton Cotterell, this amount being deficient by 1¼ inches. The rainy days were 13.

Mean atmospheric pressure at 9 a.m. was 30·181 inches, a value much above the average, although nearly two-tenths of an inch below that of the month, in 1907. The maximum reading was 30·602 inches on the 21st, and the minimum 29·136 inches on the 8th.

FEBRUARY.—The cold seasonable conditions of the preceding weeks, continued during the first few days with fine and almost rainless weather. Then a decided rise of temperature occurred, the weather continuing warm until the closing days, when winter once more returned, bringing snowfalls to nearly all parts of the country. At first, the warmth was accompanied by fair and dry conditions, but during the latter half of the month there were many rainy days.

The mean temperature was 41·6 degrees, an excess over the normal of 1·8 degrees. The maximum was 51 degrees on the 11th, and 23rd, and the minimum 28 degrees on the 2nd, and 5th,—a range of 23 degrees. The warmest day was the 18th, with a mean temperature of 46 degrees ; and the coldest the 1st, mean 35 degrees. Seven frosty nights were experienced locally.

The rainfall at Clifton was 1·80 inches, and at Frampton Cotterell 1·53 inches ; falling upon 15 and 13 days respectively. These amounts show a deficiency of decidedly over half an inch.

Mean atmospheric pressure was 30·133 inches, this value being much above the average. The greatest reading was 30·755 inches on the 7th, and the least 29·315 inches on the 29th.

March.—Apart from January, this month was the most wintry of the season ; possessing five days upon which snow fell, and 11 frosty nights, against 4 and 15 respectively during December and February combined. A cold March, however, never does any harm, at any rate from an agricultural point of view, so that although there was perhaps a little too much rainfall, the month must be considered to have been fairly favourable.

The mean temperature was 41 degrees over 1½ below the normal. The maximum was 56 degrees on the 23rd, and the minimum 28 degrees on the 5th,—an extreme range of 28 degrees. The warmest day was the 23rd, with a mean temperature of 46·5 degrees ; and the coldest the 4th, mean 34 degrees.

The rainfall varied from 3·06 inches at Clifton to 2·38 inches at Frampton Cotterell ; falling upon 20 and 16 days respectively. The excess over average being nearly three quarters of an inch.

Mean atmospheric pressure at 9 a.m. was 29·861 inches, this value being deficient. The maximum reading was

30·244 inches on 15th, and the minimum 29·142 inches on the 6th.

April.—Remarkably cold weather prevailed during the greater part of this month, culminating during the night following the 24th, in one of the heaviest snowfalls experienced locally for many years past. This, however, was to prove the turning point of the year, for so decided a rise of temperature followed, that by the closing day the warmth had become that of early summer time.

The mean temperature was 44·8 degrees, 3 degrees below the average. Colder Aprils were experienced in 1860, 1887, and 1888 ; the warmth at the close preventing the month creating a record in this respect. The warmest day was the 29th, with a mean temperature of 57·5 degrees ; and the coldest the 23rd, mean 35 degrees. The maximum was 66 degrees on the 29th, and the minimum 28 degrees on the 24th,—an extreme range of 38 degrees. Thirteen frosty nights were experienced.

The rainfall recorded was 3·04 inches at Cilfton, and 2·49 inches at Frampton Cotterell ; falling upon 14 and 12 days respectively. These amounts show an excess over the normal of over three quarters of an inch.

The mean pressure at 9 a.m. was 29·977 inches, a value just about the average. The maximum was 30·441 inches on the 6th, and the minimum 29·180 inches on the 1st.

The rainfall recorded totalled 2·69 inches at Clifton and 2·24 inches at Frampton Cotterell, falling upon 16 days. These values were slightly deficient.

Mean atmospheric pressure at 9 a.m. was 29·972 inches, a value a little above the average. The greatest pressure recorded was 30·444 inches on the 7th, and the least 29·440 inches on the 25th.

May.—Summer weather marked the opening days, and also the closing ones, while between these periods the temperature never fell seriously below the average for the time of year. Altogether the month was fully worthy of its best traditions, and did much to atone for the inclement conditions of the earlier spring time.

The mean temperature was 56·7 degrees, over 3 degrees above the average. The maximum was 77 degrees on the 31st, and the minimum 39 degrees on the 23rd,—an extreme range of 38 degrees. The warmest day was the 31st, with a mean temperature of 68 degrees ; and the coldest the 22nd, mean 49 degrees.

The rainfall locally varied from 1·87 inches at Clifton to 1·09 inches at Frampton Cotterell ; falling upon 19 and 14 days respectively. At Clifton the departure from the average was 0·38 inch.

Mean atmospheric pressure at 9 a.m. was 29·988 inches, just about the normal value. The maximum recorded was 30·505 inches on the 27th, and the minimum 29·317 inches on the 6th.

June.—A most brilliant and summer like month, commencing however, with some very severe thunderstorms in this locality. Unfortunately the downpours accompanying these were very local, so that, as after the 4th, no rainfall of consequence occurred, the country by the close of the month had begun to assume a very parched appearance.

The mean temperature was 60·5 degrees, just one above average, and four above the month in 1907. The highest reading was 82 degrees on the 3rd, and 26th, and the lowest, 43 degrees on the 7th,—a range of 49 degrees. The warmest day was the 3rd, with a mean temperature of 70 degrees ; and the coldest the 17th, mean 50 degrees.

The rainfall locally varied from 0·71 inch at Clifton, to 0·84 inch at Frampton Cotterell ; falling upon 7 and 6 days respectively. These values show a deficiency of one and three quarter inches.

Mean pressure at 9 a.m. was 30·096 inches, a value above the normal. The maximum reading was 30·411 inches on the 27th, and the minimum 29·700 inches on the 16th.

July.—Although not of so brilliant a character as its immediate predecessor, this month was fully worthy of a summer which ranks as one of the finest and most enjoyable of recent years. Still a period of very unsettled weather occurred during the second and third weeks, and on the 16th and 17th, the centre of a very deep depression passed across Scotland, bringing high winds and heavy rainfalls to all parts of the country.

The mean temperature of the month was 63·3 degrees, over one above the average and three above that of the month in 1907. The highest reading recorded was 85 degrees on the 3rd, and the lowest 50 on the 12th,—showing a range of 35 degrees. The warmest day was the 3rd, with a mean temperature of 71 degrees ; and the coldest the 13th, mean 58·5 degrees.

The rainfall varied from 2·18 inches at Clifton, to 2·20 inches at Frampton Cotterell ; falling upon 11 and 9 days respectively. These values show a deficiency in this locality of about three quarters of an inch

Mean pressure at 9 a.m. was 30·036 inches, this showing an excess above normal value. The maximum reading recorded was 30·479 inches on the 29th, and the minimum 29·427 inches on the 17th.

August.—A very remarkable month, practically no rainfall whatever falling in this locality during the first three weeks. Throughout the 23rd, however, rain fell without ceasing, the total amount for this date exceeding an inch. This large quantity was so greatly augmented during the concluding week, that in spite of the three weeks drought, the month proved the wettest August experienced locally since 1897.

The mean temperature was 61 degrees, this value being one degree below the average. The maximum was 80 degrees on the 3rd, and the minimum 45 degrees on the 31st,—a range of 35 degrees. The warmest day was the 3rd, with a mean temperature of 68 degrees ; and the coldest the 20th, mean 57·5 degrees.

The total rainfall recorded was 4·63 inches at Clifton, and 4·23 inches at Frampton Cotterell ; falling upon 12 days. These values show an excess locally of just about an inch.

Mean atmospheric pressure at 9 a.m. was 30·015 inches, and showed an excess for the third month in succession The extremes were 30·393 inches on 2nd, and 29·463 inches on 28th.

September.—Until nearly the close, there was nothing in the conduct of this month worthy of notice, conditions being varied, and, upon the whole, of a decidedly autumnal character. Then, however, came a change to the type of weather which made the month noteworthy in the two preceding years, the concluding days proving quite worthy of the hottest time of the year.

The mean temperature was just the average value, the figures being 56·7 degrees. The extremes were 79 degrees on the 30th, and 40 degrees on the 6th, 12th, and 13th.—showing an extreme range of 39 degrees. The warmest day occurred on the 30th, with a mean temperature of 67·5 degrees ; and the coldest on the 11th, mean 50 degrees.

October.—Apart from a cold autumnal week from the 22nd, to the 28th, inclusive, there was no single day throughout this month which did not possess a mean temperature well in excess of the average. Altogether indeed the weather was of the most remarkable character, there having been many a summer month in recent years which has brought fewer days of summerlike weather.

The mean temperature was 54·9 degrees, this value being no less than 5·7 degrees above the average. The mean of the first 20 days was 59·5 degrees, a really remarkable value. The maximum recorded was 78 degrees on the 1st, and the minimum 32 degrees on the 25th,—a range of 46 degrees. The warmest day was the 1st, with a mean temperature of 66·5 degrees ; and the coldest the 24th, mean 40·5 degrees. One frosty night occurred.

The rainfall varied from 1·91 inches at Clifton, to 1·76 inches at Frampton Cotterell ; falling upon 13 and 9 days respectively. These amounts show a deficiency of over two inches.

Atmospheric pressure was very excessive, the mean value at 9 a.m. being 30·119 inches. The maximum recorded was 30·465 inches on the 22nd, and the minimum 29·889 inches on the 27th.

November.—Another very remarkable month, only three entirely overcast days occurring, while there were seven which could be classed as days of bright sunshine. Altogether the month was one to be remembered, for it will probably be many years before it again shows such pleasing characteristics.

The mean temperature was 46·3 degrees, nearly three above the normal. The maximum was 59 degrees on the 11th, and the minimum 26 degrees on the 10th,—a range of 33 degrees. The warmest day was the 12th, with a mean temperature of 53 degrees ; and the coldest the 9th, mean 35 degrees. Four frosty nights were experienced.

The total rainfall amounts to 1·11 inches at Clifton, and 1·10 inches at Frampton Cotterell ; falling upon ten days. These values show a deficiency in this locality of over two inches.

Mean atmospheric pressure was 30·070 inches ; these figures showing a large excess for the month. The greatest pressure was 30·437 inches on the 30th ; and the least 29·600 inches on the 22nd.

December.—The fine autumnal weather of the two preceding months did not continue far into this month, rain falling almost daily from the 4th, to the 21st ; although as a rule the quantities were moderate. Throughout this period very mild conditions prevailed, but temperature fell rapidly during Christmas week, and the last few days brought weather of arctic severity. Upon the last day, however, a great increase of warmth set in which quickly removed all traces of the wintry weather.

The mean temperature was 40·7 degrees, this value being 1·3 degrees above the normal.

The maximum for the month was 52 degrees on the 21st, and the minimum 17 degrees on the 30th,—a range of 35 degrees. The warmest day was the 21st, with a mean temperature of 50 degrees ; and the coldest the 29th, mean 23·9 degrees. At Frampton Cotterell, six frosty nights were observed.

The rainfall varied from 2·60 inches at Clifton, to 2·19 inches at Frampton Cotterell ; falling upon 23 and 21 days respectively. These values show a deficiency of about three quarters of an inch.

Mean atmospheric pressure for the month was 29·911 inches, a value below the normal. The extremes at 9 a.m. were 30·446 inches on the 1st, and 28·911 inches on the 11th.

Regarding the year as a whole, its weather was of a very remarkable character ; the winter practically lasting until nearly the end of April, when summer set in with startling abruptness, and continued with scarcely a break until almost the close of October. Altogether the weather was of the most enjoyable character, and from an agricultural point of view very favourable.

H. H. HARDING, F.R. Met. Soc.

For the rainfall values at Clifton, and also for those relating to temperature given in the above notes, I am indebted to the courtesy of Mr. R. F. Sturge, F. R. Met. Soc.

The rainfall values for Clifton are taken at an altitude of 215 feet above sea level, and those for Frampton Cotterell at 166 feet.

D. S. DAVIES, M.D.,
Medical Officer of Health.

Meteorology for the 53 Weeks, ending January 2nd, 1909.

Height above Mean Sea Level—250 feet.

CLIFTON COLLEGE.

1908. Week Ending		Barometric Pressure at 30° and Sea Level: Mean	Highest	Lowest	Mean Temperature	Highest Mean Daily Temperature	Lowest Mean Daily Temperature	Max. Temperature in Shade	Min. Temperature at 4ft above ground	Min. Temperature on ground	Mean Daily Range of Thermometer	Greatest Daily Range of Thermometer	Smallest Daily Range of Thermometer	Mean Humidity	Grains of Vapour in a cubic ft. of air	Prevalent Wind.
		Inches	Inches	Inches												
Jan.	4	30·17	30·41	29·95	30·5	33·2	26·1	35·0	21·9	20·2	6·1	12·6	1·6	77*	1·7*	N.E.
,,	11	30·01	30·52	29·16	35·2	47·3	27·0	50·1	20·4	19·9	12·1	28·7	2·4	85	2·71	W.—N.E.
,,	18	30·20	30·37	29·99	41·8	51·1	30·2	55·1	23·4	20·8	10·4	19·2	3·8	93	3·38	S.E.—S.W.
,,	25	30·48	30·63	30·34	36·8	40·5	33·3	47·1	28·8	25·6	10·1	16·1	6·5	94	2·31	——
Feb.	1	30·06	30·31	29·71	41·3	47·7	36·3	51·2	30·2	25·7	8·7	15·0	2·9	82	2·55	N.W.—W.
,,	8	30·58	30·79	30·23	39·4	42·9	36·6	49·5	29·2	24·2	13·5	16·1	9·2	85	2·38	N.W.
,,	15	30·40	30·60	30·06	43·2	46·1	39·6	50·3	33·4	29·1	9·6	13·6	7·6	85	2·77	S.W.—W.
,,	22	29·90	30·22	29·59	46·6	48·8	44·1	53·7	37·6	32·4	8·5	13·1	4·1	89	3·27	W.—N.W.
,,	29	29·77	30·01	29·34	41·8	46·3	37·2	49·5	31·4	28·4	8·7	11·7	6·3	79	2·37	W.—N.W.
March	7	29·67	30·01	29·17	38·0	42·7	35·5	47·3	27·8	24·8	10·1	17·4	6·7	84†	2·17†	N.—S.W.
,,	14	29·88	30·24	29·45	42·4	45·7	38·8	52·1	31·2	27·0	9·3	15·2	4·4	86	2·64	N.W.—N.E.
,,	21	30·01	30·25	29·93	38·2	41·2	36·4	48·8	30·3	25·8	12·2	15·7	7·3	83	2·06	N.—N.E.
,,	28	29·99	30·16	29·50	43·5	47·8	41·0	54·0	33·4	28·0	13·2	19·0	8·9	82	2·67	S.—W.
April	4	29·96	30·10	29·73	45·6	49·0	42·8	54·8	36·5	30·7	10·9	14·1	8·3	77	2·81	Wly.
,,	11	30·16	30·47	29·84	44·8	45·8	43·2	59·0	32·6	27·9	14·4	26·4	4·1	75	2·57	N.
,,	18	30·20	30·28	30·02	45·1	50·9	42·6	61·0	33·2	28·7	14·8	21·1	10·0	71	2·51	N.E.
,,	25	29·74	22·91	29·47	39·9	44·9	34·6	50·9	28·1	27·4	12·5	16·1	4·4	79	2·33	N.W.
May	2	29·93	30·23	29·63	53·1	63·7	41·4	75·1	33·7	29·0	17·1	22·7	11·1	80	3·79	S.E.—S.
,,	9	29·75	30·02	29·34	55·2	59·1	52·9	63·2	45·6	42·3	9·2	14·6	7·5	81	3·97	S.—W.
,,	16	29·85	30·23	29·56	52·4	54·5	50·4	60·9	41·5	41·1	11·8	19·0	7·1	78	3·38	N.W.—S.
,,	23	30·23	30·52	29·77	55·3	59·9	52·0	64·2	41·0	41·2	13·1	22·0	7·8	77‖	3·67‖	Wly.
,,	30	30·24	30·63	29·87	58·3	64·5	52·7	76·6	45·5	44·9	18·9	29·6	9·7	73	3·87	N.W.—N.E.
June	6	30·03	30·13	29·90	65·2	68·8	54·0	81·0	47·8	44·8	16·9	25·5	10·5	78	4·93	S.E.—N.
,,	13	30·17	30·36	29·94	58·4	62·8	53·1	68·7	44·4	42·0	13·0	15·1	9·6	75	4·12	N.W.,W.—S.
,,	20	29·88	29·99	29·73	55·9	58·3	53·6	67·2	45·3	42·5	14·5	21·1	3·7	77	3·74	W.
,,	27	30·32	30·42	30·20	62·0	67·4	56·3	80·7	45·6	43·2	21·6	26·6	13·1	63‡	4·05‡	N.E.

* For Wednesday (1st January) only. Wet bulb frozen every other morning.

† Average for 6 days only. Sunday (1st March) reading omitted.

‖ Average for 6 days. Wet bulb dry on Saturday (23rd May).

‡ Average for 6 days. Wet bulb dry on Saturday (27th June).

Meteorology for the 53 Weeks—Continued.

Height above Mean Sea Level—250 feet.

CLIFTON COLLEGE.

1908. Week Ending	BAROMETRIC PRESSURE at 30° and Sea Level			Mean Temperature	Highest Mean Daily Temperature	Lowest Mean Daily Temperature	Max. Temperature in Shade	Min. Temperature at 4ft above ground	Min. Temperature on ground	Mean Daily Range of Thermometer	Greatest Daily Range of Thermometer	Smallest Daily Range of Thermometer	Mean Humidity	Grains of Vapour in a cubic ft. of air	Prevalent Wind.
	Mean	Highest	Lowest												
	Inches	Inches	Inches												
July 4	30·26	30·35	30·07	69·4	73·5	66·0	87·0	52·1	52·0	25·1	27·0	22·0	69*	4·89*	N.E.
,, 11	29·90	30·09	29·69	62·1	65·1	60·3	72·2	52·6	51·0	12·2	16·7	7·1	74	4·76	W.—S.
,, 18	29·75	29·98	29·44	59·7	60·0	59·1	65·9	52·3	48·9	9·6	13·6	6·4	77	4·33	N.W.
,, 25	30·15	30·28	29·98	64·7	67·5	62·5	76·2	53·6	52·5	15·6	20·4	9·7	73	4·83	W.—S.
Aug. 1	30·37	30·51	30·18	65·2	68·8	61·8	75·6	51·4	48·2	17·5	22·6	14·5	63	4·44	N.W.
,, 8	30·24	30·42	29·95	64·2	67·4	61·1	78·9	51·5	48·0	17·4	29·4	5·3	68	4·51	N.W.—N.E.
,, 15	30·11	30·31	29·90	60·9	64·3	57·3	71·6	49·0	44·6	16·4	17·9	12·6	64	4·08	W.—N.
,, 22	30·06	30·24	29·77	60·1	62·2	56·8	75·0	49·1	43·4	13·5	28·9	6·3	79†	4·70†	E.
,, 29	29·73	29·92	29·49	59·8	61·2	57·6	67·8	52·4	49·8	10·8	14·6	8·4	88	4·96	W.
Sept. 5	29·87	30·32	29·22	53·6	57·5	48·7	63·2	42·2	38·8	11·2	19·7	7·1	76	3·63	W.—N.W.
,, 12	29·92	30·24	29·61	54·8	60·1	50·9	68·2	42·6	38·9	12·4	16·6	7·7	72	3·68	W.
,, 19	30·15	30·32	30·00	57·2	61·5	51·5	67·6	43·0	37·9	13·5	17·0	11·0	79	4·21	S.W.—S.E.
,, 26	29·97	30·09	29·84	57·2	60·8	54·3	65·3	50·2	46·9	8·6	10·6	5·9	89	4·52	E.—N.E.
Oct. 3	30·14	30·24	29·99	64·0	68·6	56·4	77·0	51·1	47·8	15·6	19·1	10·7	87	5·37	S.—E.
,, 10	30·15	30·27	29·94	58·7	63·1	56·4	69·3	50·4	48·0	10·5	13·3	3·6	89	4·67	N.E.—S.W.
,, 17	30·10	30·30	30·00	58·2	60·4	56·5	65·2	49·9	46·3	9·4	14·8	5·6	87	4·50	E.—S.
,, 24	30·19	30·48	29·99	49·9	57·9	41·8	60·0	34·5	32·0	6·8	14·7	1·1	89	3·77	S.E.—N.
,, 31	30·10	30·26	29·90	49·9	56·9	40·4	63·1	32·7	28·0	13·3	22·8	4·2	91	3·67	N.E.—S.E.
Nov. 7	30·12	30·21	29·97	47·8	55·2	41·4	58·4	37·0	34·4	8·7	11·0	6·4	88	3·30	E.
,, 14	29·92	30·03	29·73	45·9	53·8	38·5	59·7	27·9	23·7	13·8	27·9	5·2	87‖	3·28‖	E.—S.
,, 21	30·22	30·37	29·99	46·6	47·6	44·0	55·0	38·3	32·6	8·7	14·8	4·1	85	2·96	N.W.—W.
,, 28	30·05	30·25	29·62	49·2	51·9	45·5	56·0	28·9	33·6	8·8	13·3	4·1	82	3·37	W.—S.
Dec. 5	30·35	30·46	30·26	47·0	48·7	45·0	50·8	38·6	33·9	6·4	12·2	3·1	92	3·16	——
,, 12	29·71	30·21	29·01	44·9	46·0	43·5	51·6	37·8	32·6	9·1	12·7	4·2	85	2·97	S.,S.W.—N.W.
,, 19	29·62	30·12	29·38	45·8	47·8	42·1	51·6	37·4	30·9	8·4	12·3	5·8	89	3·17	S.W.
,, 26	30·18	30·35	30·03	43·3	50·6	34·4	52·9	32·9	32·5	3·5	6·5	1·6	89	2·98	S.—E.
1909															
Jan. 2	30·25	30·73	29·92	35·2	48·5	26·1	46·0	19·4	21·7	9·5	23·7	2·2	92	3·41	S.E.—S.W.

* 6 days' average. Wet bulb dry on Friday (3rd July).

† Average for 6 days only. Wet bulb dry on Monday (17th August).

‖ Average for 6 days. Wet bulb frozen on Tuesday (10th November).

Rainfall of 1908.

Taken at Clifton College.

WEEK. ENDING.	RAIN INCHES.	WEEK ENDING.	RAIN INCHES.
January 4	Nil.	July 11	·840
,, 11	1·030	,, 18	1·700
,, 18	·270	,, 25	Nil.
,, 25	·060	August 1	Nil.
February 1	·195	,, 8	Nil.
,, 8	·018	,, 15	·020
,, 15	·475	,, 22	·596
,, 22	1·250	,, 29	2·759
,, 29	·265	Sept. 5	1·675
March 7	·610	,, 12	·430
,, 14	·275	,, 19	·453
,, 21	·085	,, 26	1·020
,, 28	1·425	October 3	·070
April 4	·570	,, 10	·095
,, 11	·025	,, 17	·045
,, 18	·005	,, 24	1·390
,, 25	1·230	,, 31	·175
May 2	1·683	Nov. 7	·050
,, 9	·410	,, 14	·235
,, 16	·800	,, 21	·185
,, 23	·110	,, 28	·400
,, 30	·390	Dec. 5	·170
June 6	·385	,, 12	·830
,, 13	·200	,, 19	·725
,, 20	·030	,, 26	·045
,, 27	Nil.	**1909.**	
July 4	Nil.	Jan. 2	·807

D. RINTOUL.

Rainfall 1908.

MONTH.	Rainfall in Inches.	Average of 27 Years.	Departure from Average.	No of days on which ·01 inches or more rain fell
January	1·655	2·649	− 0·994	13
February	2·008	2·197	− 0·189	14
March	2·905	2·321	+ 0·584	18
April	2·925	2·231	+ 0·694	12
May	1·818	2·016	− 0·198	14
June	0·585	2·259	− 1·674	6
July	2·540	2·758	− 0·218	10
August	4·527	3·206	+ 1·321	13
September	2·498	2·659	− 0·161	18
October	1·705	3·802	− 2·097	11
November	0·945	2·939	− 1·994	10
December	2·402	3·369	− 0·967	19
	26·513	32·406	− 5·893	158

D. RINTOUL.

PART III.

CITY HOSPITALS.

Report of the General Medical Superintendent (Administrative).

Ham Green Fever Hospital.

Dr. Fletcher's Report for the year 1908 presents some points of considerable interest.

The admissions were 112 less than in the previous year owing chiefly to the small number of Scarlet Fever cases admitted from February to August. The total number of admissions (777) however, though less than the number for 1905, 1906 and 1907, was greater than in any of the six previous years from 1899, when the Hospital was first opened.

The average death rate, excluding those within 37 hours of admission, was 3·6 per cent., a very favourable rate, considering that a large proportion of the cases was Diphtheria.

Diphtheria.

In regard to Diphtheria, Dr. Fletcher notes an important point :—

> " The extension of the disease to the nose generally " gives rise to naked-eye signs, through which the " Diphtheritic nature of the complaint can be " diagnosed, although the previous throat condition " has been unrecognised. *The throat should certainly* " *always be examined bacteriologically in every case of* " *Diphtheritic nasal discharge.*"

Some cases sent in as primary Nasal Diphtheria have been found to be, as a fact, cases of Nasal complication, in which the initial Throat lesion has been missed: it is important to remember that the commonest point of attack in Diphtheria is the Throat, and Dr. Fletcher's advice to give attention to the Throat in all cases should be followed.

Of the 513 cases of Diphtheria admitted during the year, 85 per cent. were admitted during the first week of illness, but only 32 per cent. on or before the fourth day of the disease.

It is most important to the patient's chance of recovery that Diphtheria should be recognised and removed to Hospital early, so that Antitoxin may be administered at once.

Some delay in removal having occurred through waiting for bacteriological results, the following circular has been issued to medical practitioners with the view of avoiding this, and of securing the earliest possible administration of Antitoxin. Fifty patients had received some Antitoxin before admission.

CITY OF BRISTOL.

Antitoxin Treatment in Diphtheria.

Prepared for the Guidance of Medical Practitioners chiefly from a Paper by Dr. Claude B. Ker, M.D., F.R.C.P. (The "Practitioner," January, 1909).

Treatment.—The keynote to success in the treatment of Diphtheria is the early administration of Antitoxin.

If every case could be injected with Antitoxin on the first day of illness, and kept at rest for three weeks, very favourable results would ensue.

Spread of the membrane is rare after the injection of Antitoxin ; but the chances of recovery grow less with each day of postponement.

The importance of *early dosage* cannot be over-estimated.

In any but the mildest of throats, the result of culture should not be awaited, but injection of Antitoxin should be made at once if the clinical symptoms warrant the clear suspicion of Diphtheria.

Medical Practitioners should notify at once, specifying urgency, by telephone if necessary, when the diagnosis is clinically certain and removal urgent. Removal will then be made, and the culture, which should be taken in every case, can be dealt with later.

PROPHYLACTIC DOSES.—Even a small dose of 2,000 units may be of much service, if it is necessary to await the result of a culture before removal can be definitely arranged for, and this dose cannot harm the patient.

CARRIERS.—If Diphtheria breaks out in a school or institution, all throats and noses should be at once tested for the bacillus ; similarly if cases succeed one another in a family in spite of removal of patients to hospital and disinfection, the throats and noses of other members of the family should be at once tested for the bacillus, which will be found to be carried by people and not by drains.

If prophylactic doses are necessary amongst contacts 500 units will act as an efficient protection for three weeks, but it must be borne in mind that, though this is a protection to the individual, it does not prevent him becoming a " carrier " to others.

DOSE.—By age—Infants—not more than 4,000 units at one dose.

Children over 1 year—6,000 units may be given in marked cases. (As children suffer from Diphtheria more severely than adults, the necessary doses are comparatively greater).

Adults—8,000 units as a rough maximum for one dose.

Minimum Dose—2,000 units, for example in a case which is more bacteriological than clinical Diphtheria.

Dose according to situation and extent of lesion.

Tabular Guide to Initial Dose of Antitoxin required.

	Tonsillar lesions only	Pillars of Fauces also involved	Uvula also involved	Posterior Pharyngeal wall also involved	Laryngeal symptoms also	Nose involved also	
1st day	1000	2000	3000	4000	6000	8000	UNITS.
2nd day	3000	4000	5000	6000	6000	8000	
3rd day	4000	5000	6000	7000	6000	8000	
4th day	5000	6000	7000	8000	6000	8000	

In purely laryngeal cases at least 6,000 units should be given, whether dyspnœa is present or not.

Nasal cases with actual membrane and toxic symptoms require full doses.

Nasal cases with merely a chronic dirty discharge and no toxic symptoms may require little.

Any cases presenting evidence of much toxœmia require full doses.

Indications for repetition of Dose.

If case is treated on first day, second dose may not be necessary.

If no improvement in symptoms or amount of membrane, repeat in 12 hours.

If symptoms are less urgent and some improvement has resulted, interval may be extended to 24 hours, but

If patient is extremely ill, dose should be repeated in 8 hours.

AS TO TOTAL AMOUNT OF SERUM TO BE ADMINISTERED.

Continued injections at short intervals are required until definite improvement and inhibition of growth of membrane results.

In severe naso-pharyngeal and laryngeal cases, 40,000 units may be found necessary.

In many cases no improvement results until 20,000 units have been given.

METHOD OF INJECTION.

Injection must in all cases be made with aseptic precautions. The skin must be carefully cleaned and prepared, and the needles and syringes kept aseptic.

The serum may be injected in the flank or, better still, into the loose tissue between or below the shoulder blades where the skin is little sensitive and the patient cannot see what is going on.

An antitoxin syringe should always be kept in readiness by Medical Practitioners, so that antitoxin may be administered without delay in doubtful cases.

D. S. DAVIES, M.D.,
Medical Officer of Health.

J. FLETCHER, M.D.,
Resident Medical Officer,
Ham Green Hospital.

The fatality rate in 469 cases of Clinical Diphtheria was only 6 per cent., a remarkably satisfactory figure when one considers the terrible fatality of this disease in former days. Antitoxin was administered to every patient who had deposit on the tonsils, and Dr. Fletcher notes that " no patient developed croupy symptoms after admission to Hospital," this again being a favourable contrast to pre-antitoxin days, when " Croup " necessitating tracheotomy was a daily occurrence.

Tracheotomy was performed on only 8 patients, of whom 7 recovered.

Average length of stay in Hospital.—The average length of stay in Hospital of Scarlet Fever cases that recovered was 58·4 days, the longest stay of any one patient was 189 days.

The average length of stay in Hospital of Diphtheria cases who recovered was 50·3 days, the longest stay of any one patient was 180 days.

The chief causes of long detention in Hospital were discharge from the nose and ears in Scarlet Fever ; and paralysis, or persistence of the organism in the nose, throat or ear in Diphtheria.

Chronic discharges in nose and ear, if neglected and dismissed too soon, would find their way later, with perhaps a fatal issue, to the wards of General Hospitals ; and paralytic cases, as well as those in which the causal organism persists are obviously unsuitable for premature discharge. The small number of " return " cases, 2·3 per cent., is evidence of the discretion used in discharging convalescent patients.

We now know that the so-called " acute infectious fevers " may become chronic, and persist for a considerable time in convalescent patients, perhaps in some cases for the rest of life ; we also know that persons, not drains and refuse heaps, are the main breeding grounds of the specific infectious fevers. We know too that, though infected bedding and clothing may for a time retain and transmit infection, the chief purveyors of it are persons, either suffering, imperfectly convalescent, or " carriers."

It is imperative, therefore, to attend scrupulously to the later stages of infectious disease convalescence, and to detain doubtful cases until the utmost has been done to prevent the establishment of a chronic focus of infection: this is more economical to the patient and to the public, and no Hospital can claim to be rationally managed unless this duty is performed under skilled medical supervision.

Staff Illness.—The Staff illnesses have been unduly frequent. Eleven Nurses contracted Diphtheria, two contracted Scarlet Fever, and one German Measles. This led to 426 days loss of service, equivalent to the absence of one Nurse for over a year. The other minor diseases occurring amongst the Staff led to 528 days loss of service, equivalent to nearly 1½ year's loss of service. This is in remarkable contrast to the loss of service entailed at Novers Hill Hospital through contracting Small-pox, an event which, owing to the carefully renewed protection of the staff by re-vaccination, has not hitherto occurred.

NOVERS HILL HOSPITAL.

(Small-pox).

During the Spring and Summer of 1908, the Scarlet Fever admissions to Ham Green fell to such an extent, that the relief afforded by the Novers Hill wards was not urgently needed, and the Health Committee decided to close down the Hospital, leaving a minimum staff. This was done, until the occurrence of Small-pox in December, and its further extension in January, 1909, necessitated the re-opening. I did not think it a wise step to close down the Hospital and did not recommend it, but it was considered to be advisable as an economy. The depletion of the Hospital Staff, and unreadiness for the full duty suddenly thrust upon it in December, nearly led to disaster.

It is unsafe, because of a temporary lull in fever prevalence, to close down Novers Hill Hospital, especially since Clift House Hospital is not now available, and this deprives us of extra Diphtheria beds.

Small-pox outbreaks do not give warning, and promptness in isolating early cases is essential. As, by special efforts, the Medical Department has succeeded over a series of years in limiting Small-pox outbreaks to very small numbers, the idea has unfortunately arisen that this is a normal event and will continue. It is wrongly supposed to be due to improvement in the sanitary condition of English towns, preventing the establishment of a large Small-pox outbreak. In the first place the spread of Small-pox is purely a personal matter, it is handed on almost entirely by infected *persons*, and has no causal dependence upon general sanitary conditions: in the second place, granting general sanitary improvement in the condition of English towns, this has not prevented the occurrence of well marked epidemics during the present century, such as will continue to occur until England adopts the rational course adopted in Germany and insists upon adequate vaccination and re-vaccination of the entire population.

List of Smallpox Outbreaks since 1899.

	Date.	No. of Cases.	No. of Deaths
GLASGOW	April to December, 1900 January to July, 1901 Nov. 1901 to May 1902	397 1389 } **2255** 469	**283**
LIVERPOOL	1902 1903	560 } **2280** 1720	22 } **159** 137
GATESHEAD and Filling Urban District	April 1903 to May 1904	**665**	**51**
HULL	1899 1900	839 } **943** 104	141 } **162** 21
SWANSEA	1902	**187**	**33**
LEEDS	1902 1903	61 } **500** 439	6 } **28** 22
WEST HAM	1901 1902	46 } **874** 828	4 } **154** 150
DEWSBURY	1904	**1302**	**65**
LEICESTER	1903 1904	406 } 727 321	21 } 26 5

It is evident, then, that the large towns are still capable of severe Small-pox extension, and that Bristol, with a percentage of at least some 21 per cent. unvaccinated, is no exception to the rule, and is quite open to invasion.

The total available beds at Novers Hill Hospital for Small-pox are only 35, for a city of 372,000, and it is essential that these at least should be in full working order when Small-pox arrives. When there is no Small-pox the beds are most usefully employed in nursing Scarlet Fever, as this relieves the Diphtheria pressure upon Ham Green, accentuated by the closure of Clift

House Hospital in 1906, and also provides a staff ready at once and fully equipped to deal effectually with a vigorous attack from Small-pox, which may necessitate at a few days' notice, the employment of acute wards for severe cases, other wards for convalescent or mild " missed " cases, and observation wards for doubtful cases.

A staff cannot be materialised from nothing in a few days, experienced nurses are not available at a moment's notice ; domestics cannot be obtained at short notice willing to venture amongst acute Small-pox. It is essential for the safety of the City to keep a staff, trained to the work, always ready for immediate service.

This can best be done by keeping the wards in full use for Scarlet Fever cases, during the intervals of Small-pox, as this involves only the slight inconvenience of Scarlet Fever transference to Ham Green upon invasion by Small-pox, while the staff reverts, with as little delay as possible, to the normal work of Small-pox nursing.

The simultaneous non-availability of Clift House and of Novers Hill, led to great difficulty in the first month of 1909, and finally to the premature closing of a Public School.

It must not be forgotten that the total fever accomodation for the City, 170 beds at 2,000 cubic feet, is very inadequate for the population of 372,785, less than half the hospital accommodation of any of the other large cities.

D. S. DAVIES, M.D.,

General Medical Superintendent, City Hospitals.

CITY HOSPITAL, HAM GREEN, BRISTOL.

Report of the Resident Medical Officer for the Year 1908.

To the Members of the Committee of Management.

Gentlemen,

I have the honour to submit to you the Tenth Annual Report, dealing with the work of the above Hospital, for the statistical year ending January 2nd, 1909.

There were 137 patients in Hospital at the beginning of the year, 777 patients were admitted, 765 discharged well, and 35 died, thus leaving 114 patients in Hospital at the end of the year.

The admissions numbered 112 less than in the preceding year, this being due to the small number of cases of Scarlet Fever admitted.

The average daily number of patients in Hospital was 106·6 which is much lower than in the preceding year. The highest daily number was 154 on November 27th, and the lowest 64 on June 10th.

The average length of stay in Hospital of patients who recovered was 52·5 days, of fatal cases 10·3 days.

The average death-rate among the patients for all diseases was 4·3 per cent.; six deaths occurred within 37 hours of admission to Hospital, if these be excluded, the corrected mortality rate becomes 3·6 per cent.: both these rates are slightly lower than those of 1907, which must be considered satisfactory as a large proportion of the patients admitted were suffering from Diphtheria.

Statistical tables are appended, showing the diseases treated, mortality rates, complications observed, and other particulars.

SCARLET FEVER.

33 cases were in Hospital at the beginning of the year; 219 cases were admitted (including two cases notified as Diphtheria, and one as Scarlet Fever and Diphtheria); 197 cases were discharged well, and 4 died, thus leaving 51 cases in the Hospital at the end of the year.

Removal to Hospital was effected in 88 per cent. of the cases during the first week of illness, compared with 84 per cent. last year.

Age Incidence.—Of the patients admitted 29·4 per cent. were under 5, 46·7 per cent. between 5 and 10, 13·2 per cent. between 10 and 15, and 10·7 per cent. over 15 years of age.

The average length of stay in Hospital of patients who recovered was 58·4 days; of fatal cases 10·5. The longest stay of any one patient was 189 days.

The chief cause of long detention in Hospital were Rhinorrhœa, Otorrhœa, and tardy Desquamation.

Fatality Rate.—Calculated on the discharges, the fatality rate was 1·9 per cent., the rate in males being four times that in females.

All the deaths occurred in patients under 6 years of age.

Symptoms and Diagnosis.—The type of the disease was generally speaking less severe than in the preceding year. About 90 per cent. of the patients suffered from Scarlatina Simplex, and 10 per cent. from Scarlatina Anginosa. The Diagnosis in 10 cases remained very doubtful throughout.

Of 14 cases notified as Scarlet Fever, 4 were cases of Scarlet Fever and Diphtheria, 6 German Measles, 2 Measles, 1 Diphtheria, and 1 Scarlet Fever and Whooping Cough.

Cause of Death.—Of the deaths 3 resulted from Toxæmia and Syncope and 1 from complications, viz., Pneumonia.

Complications.—**Rhinorrhœa** was marked in 22 cases, in 3 of which the Diphtheria Bacillus was found in free growth, Otorrhœa occurred in 27 cases ; in 13 of these the right, in 8 the left, and in 6 both ears were affected.

Cervical Adenitis was severe in 6 patients, and in 2 of these Abscess supervened.

Albuminuria, variable in duration and occurring chiefly during convalescence was found in seven cases. True *Nephritis* was noted in five patients. *Scarlatinal Rheumatism* was marked in seven cases, in one of which heart mischief resulted. *Bronchitis* occurred in two cases, *Pneumonia* and *Pleurisy* in one each.

Mastoid Abscess occurred in one case. Two distinct cases of *Relapse* occurred, and in four cases patients suffered from *Onychia*.

Sequelæ.—Four patients were discharged with slight Otorrhœa, and two with slight Albuminuria after Nephritis.

"Return Cases."—Infection was apparently carried home in the case of five patients out of a total of 216 discharges, giving a "return case" rate of 2·3 per cent. The average length of stay in Hospital of the infecting cases was 53 days, and the average interval between the return home of the patient and the "return case" 14 days. Three of the infecting patients had uncomplicated attacks, whilst one patient had suffered from Otorrhœa and the other from Rhinorrhœa.

DIPHTHERIA.

89 cases were in Hospital at the beginning of the year ; 513 were admitted (including one case sent in as Scarlet Fever). 516 were discharged well, and 28 died, thus leaving 58 patients in Hospital at the end of the year.

Removal to Hospital was effected in 85 per cent. of the cases, where a definite history of onset could be ascertained, during the first week of the illness, as compared with 89 per cent. in 1907, but only 32 per cent. were admitted on or before the fourth day of the disease, up to which time the good effects of Antitoxin are so marked.

The average day of the disease on admission in cases which proved fatal was the fifth.

The Diphtheria Bacillus was found before admission in 436 out of 523 cases notified as Diphtheria ; of the other 87, in 62 no swab was taken, in 14 the swab was negative, and in 11 the swab contained suspicious organisms.

Age Incidence.—Of the patients admitted, 23·8 per cent. were under 5 years of age, 44·2 per cent. between 5 and 10, 18·8 per cent. between 10 and 15, and 13·2 per cent. over 15.

The average length of stay in Hospital of cases which recovered was 50·3 days, of fatal cases 10·7 days. The longest stay of any one patient was 180 days.

Paralysis of various parts and the persistence of the organism in the nose, throat, or ear, were chiefly responsible for long detention.

Fatality Rate.—Calculated on the discharges the fatality rate was 5·1 per cent. Four deaths occurred within 37 hours of admission ; if these be excluded the rate becomes 4·4 per cent. The death rate in females was much less than in males. 36 per cent of the deaths occurred in patients under 5, 93 per cent in patients under 10, and 7 per cent. in patients over 10 years of age.

As a number of patients harbouring the Diphtheria Bacillus, but with few clinical symptoms, are included in the discharges, the cases have been divided into two classes :—

1.—469 cases with clinical symptoms, in which the fatality rate was 6 per cent.

2.—75 cases chiefly of the nasal variety, in which the fatality rate was nil.

Symptoms and Diagnosis.—The disease was confirmed bacteriologically before admission in 436 cases of the 523 notified as Diphtheria : one other case notified as Diphtheria on a positive bacteriological result was found on admission to be a case of Scarlet Fever harbouring the Diphtheria Bacillus (Diphtheria " carrier.")

Of 62 cases in which no swab was taken 59 were clinically Diphtheria, two were cases of Tonsillitis and one Scarlet Fever.

Of 14 cases in which the swab was negative, nine were clinically Diphtheria, two were Tonsillitis, and one each was Pneumonia, Syphilis, and Scarlet Fever.

Of 11 cases in which the swab was suspicious, nine were clinically Diphtheria, one was a case of Tonsillitis, and the other nil.

The seat of the disease in the 513 cases (including one case sent in as Scarlet Fever) was as follows :—

Throat	397
Throat and Nose	55
Nose	36
Throat and Larynx	16
Ear	4
Throat, Nose and Larynx ..	2
Eye	2
Throat, Nose and Ear	1
Total	513

The percentage of cases in which the nose was affected on admission was 18·3; in 27 other throat cases the Diphtheria Bacillus was subsequently found in the nose.

The extension of the disease to the nose generally gives rise to naked-eye signs through which the Diphtheritic nature of the complaint can be diagnosed, although the previous throat condition has been unrecognised. The throat should certainly always be examined bacteriologically in every case of Diphtheritic nasal discharge.

Early Albuminuria was present in 68 per cent. of the clinical cases.

Cause of Death.—Of the deaths 22 were due to Toxæmia and Syncope,—these figures emphasize the need for very early injection of Antitoxin in order to avert a fatal result—and six to complications, viz., four to Broncho-pneumonia, and one each to Meningitis and Cardiac Paralysis.

Complications.—Severe Adenitis was noted in 16 cases, and Cellulitis of the neck in four; Cervical Abscess occurred in four cases.

Otorrhœa occurred in 16 cases.

Rhinorrhœa, generally purulent and at times sanious, was marked in 47 cases.

Epistaxis was severe in 7 cases, and in 19 troublesome vomiting occurred.

Broncho-pneumonia was noted in six and Bronchitis in two cases.

Paralysis occurred in 69 cases.

Nephritis occurred in two cases, and Meningitis in one.

Relapse was noted in two cases.

The following Paralyses were observed; Soft Palate in 59 cases, Ciliary Muscle in 6, Ocular Muscles in 14, Skeletal Muscle in 2, Face in 3, Eye-lid in 3, Diaphragm and Larynx in one case each.

Treatment.—Active local antiseptic treatment was carried out in all cases. Antitoxin was injected into every patient who had deposit on the tonsils, with manifest good results. It is also well worth recording, in this connection, that no patient developed croupy symptoms after admission to Hospital; further many patients would have succumbed but for its use.

An Antitoxin Rash was observed in 50 of the clinical cases, or in 16 per cent. of the injected patients; the rash was usually urticarious but at times urticario-papular.

Fifty of the patients had received some Antitoxin before admission.

Tracheotomy was performed on 8 patients, of whom 7 recovered and one died. Two patients were admitted from the Royal Infirmary the day after Tracheotomy had been performed, one of whom recovered, and the other died. The mortality rate after Tracheotomy was thus 20 per cent., which is very satisfactory.

During the year 2,204 bacteriological examinations were performed from cases or suspected cases of Diphtheria, of which 159 were done at the Hospital, and 2,045 by the City Bacteriologist.

ENTERIC FEVER.

Thirteen cases were admitted and eleven discharged, leaving two cases in Hospital at the end of the year. No death occurred.

Removal to Hospital.—One patient was admitted during the first week, 10 during the second and two during the third week of the illness.

The average length of stay in Hospital of the patients was 52·8 days.

Diagnosis.—Ten patients gave a positive Widal reaction before admission ; in another the reaction was negative before admission but found positive afterwards ; of the rest in which no reaction was ascertained, one was found positive after admission and the other was well marked clinically.

One patient notified as a case of Enteric Fever was not suffering from the disease.

Complications.— Relapse occurred in three cases and Intestinal Hæmorrhage, Pleurisy and Venous Thrombosis once each.

MIXED INFECTIONS.

A large number of patients during the year were found to be suffering from more than one disease or were incubating a second disease on admission : these cases unless at once recognised and isolated are a source of great danger to other patients.

The average length of stay in Hospital of such cases was 76 days, of fatal cases 6·6 days. The longest stay of any one patient was 170 days.

The cases are divided into three groups :—

Group 1.—*Cases notified and admitted as suffering from two diseases.*

Two patients were admitted suffering from Diphtheria and Scarlet Fever, and three from Diphtheria and Whooping Cough, two of whom died.

Group 2.—*Cases which were found on admission or shortly afterwards to be suffering from a second disease also, the infection of which was received before admission.*

Four patients sent in as cases of Scarlet Fever, and one as a case of Diphtheria, were found to be cases of Scarlet Fever and Diphtheria, one of the former ending fatally.

One Scarlet Fever and four Diphtheria patients were suffering from Chicken-Pox also on admission, and one Scarlet Fever patient from Whooping Cough. One Scarlet Fever patient was incubating Rötheln (German Measles), and another Measles on admission. Two Diphtheria patients were incubating Chicken-Pox on admission.

Group 3.—*Cases which received the infection of a second disease whilst in Hospital.*

Five Scarlet Fever and eight Diphtheria patients developed Chicken-Pox. Four Scarlet Fever patients developed German Measles ; and one Diphtheria patient Whooping Cough. One Scarlet Fever patient suffered from Post-Scarlatinal Diphtheria. All made good recoveries.

OTHER DISEASES.

Of 8 patients notified as cases of Scarlet Fever, 6 were suffering from German Measles, and 2 from Measles. Of 8 patients notified as cases of Diphtheria, 5 were suffering from Tonsillitis, and one each from Pneumonia, Syphilis, and Nil. Four patients were admitted suffering from Measles. One patient notified as suffering from Enteric Fever had Nil. All the above patients needed strict isolation, the *average length of stay* in Hospital being 31·4 days.

VACCINATION STATISTICS.

All patients were examined on admission as to their state of Vaccination with the following results :—

Unvaccinated	168
No mark, but said to have been Vaccinated	3
One Mark	234
Two Marks	150
Three Marks	139
Four or more Marks	83
Total	777

Thus of 777 patients examined 21·6 per cent. were unvaccinated, whilst of those Vaccinated 38·6 per cent. had one mark, 24·7 per cent. had two marks, 22·9 per cent. had three marks, and only 13·7 per cent. had four marks as prescribed by the Local Government Board. In 44 out of 234 patients who had only one mark, the Cicatrix was very small and poorly foveated.

Re-vaccination was found to have been performed on 16 patients, the majority of whom came from Public Institutions.

STAFF ILLNESS.

Eleven Nurses contracted Diphtheria; two Nurses contracted Scarlet Fever, and another Rötheln (loss of service 426 days). All made good recoveries.

Other minor illnesses occurred during the year (loss of service 528 days). The total loss of service in time entailed by illness of all kinds amounted to 954 days.

GENERAL.

I have again throughout the year noted all cases of Pediculosis occurring among patients admitted, with the following results:—Out of 777 Males and Females examined, 42 per cent. had nits or lice or both in their hair, which required active treatment, and in many cases necessitated cropping the hair; but whilst 28 per cent. of the Males' heads were dirty, 56 per cent. of the Females' were found so. Five were suffering on admission from Ringworm of the Scalp, five from Impetigo, and six were badly flea-bitten over the body.

During the year 21,073 articles of clothing were disinfected by steam in the Hospital Disinfector.

The Observation Pavilion has proved of great service in dealing with cases of Mixed Infections and diseases other than Scarlet Fever or Diphtheria.

One *post-mortem* was performed during the year to confirm the cause of death.

In conclusion I beg to acknowledge the services rendered by the Matron (Miss Garden), and the good work done by the Nursing and Working Staffs.

I am, Gentlemen,

Your obedient Servant,

JAMES FLETCHER, M.D., D.P.H.,

Resident Medical Officer.

HAM GREEN HOSPITAL.

TABLE I.

Admissions and Discharges during 1908, with the number of Patients in Hospital at the beginning and end of year.

Disease.	Remaining in Hospital at end of year 1907.		Admitted.		DISCHARGED.				Remaining in Hospital at end of Year 1908.	
					Recovered.		Died.			
	M	F	M	F	M	F	M	F	M	F
Scarlet Fever	11	22	103	116	83	114	3	1	28	23
Diphtheria	34	55	261	252	244	272	18	10	33	25
Enteric Fever	—	—	9	4	7	4	—	—	2	—
Mixed Infections	4	7	5	6	9	10	—	3	—	—
Other Diseases	2	2	6	15	8	14	—	—	—	3
Totals	51	86	384	393	351	414	21	14	63	51
	137		777		765		35		114	

HAM GREEN HOSPITAL.

TABLE II.

	CASES PROVED TO BE												
Cases Notified as	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Scarlet Fever & Diphtheria.	Diptheria and Pertussis.	Scarlet Fever & Pertussis.	Rötheln.	Tonsillitis.	Pneumonia.	Syphilis.	Nil.	Totals.
Scarlet Fever (230)	216	1	..	2	4	..	1	6	..	..	..	..	230
Diphtheria (523)	2	512	..	..	1	..	..	..	5	1	1	1	523
Enteric Fever (14)	..	..	13	..	..	..	..	..	..	..	..	1	14
Measles (4)	..	..	..	4	..	..	..	..	..	..	..	..	4
Scarlet Fever & Diphtheria (3)	1	..	..	..	2	..	..	..	..	..	..	..	3
Diphtheria & Pertussis (3)	..	..	..	..	..	3	..	..	..	..	..	..	3
	219	513	13	6	7	3	1	6	5	1	1	2	777

HAM GREEN HOSPITAL.

TABLE III.

Monthly admissions and average daily number in Hospital.

1908.	Scarlet Fever.		Diphtheria.		Mixed Infections.		Enteric Fever.		Other Diseases.		Average Daily No. in Hospital in each Month.
January ..	23	35	34	107	2	5	0	2	1	5	131·3
February	9		33		0		0		3		120·8
March ...	3		40		3		2		1		100
April ..	15	34	39	111	1	2	1	7	1	5	84·4
May .	11		39		1		0		3		88·8
June ..	8		33		0		6		1		71·1
July ..	10	48	54	137	0	1	2	2	2	7	84·8
August ..	9		34		0		0		3		82·3
September...	29		49		1		0		2		91·7
October .	43	102	63	158	2	3	0	2	0	4	133
November	33		56		1		0		0		145
December ...	26		39		0		2		4		138·3
Year 1908	219		513		11		13		21		106·6

HAM GREEN HOSPITAL.

TABLE IV.

Showing Ages and Sexes of Patients Discharged during the year 1908, with the Fatality Rate.

Scarlet Fever.										Diphtheria.									
	MALE.			FEMALE.			TOTAL.				MALE.			FEMALE.			TOTAL.		
Age.	Recovered.	Died.	Fatality per cent.	Recovered.	Died.	Fatality per cent.	Recovered.	Died.	Fatality per cent.	Age.	Recovered.	Died.	Fatality per cent.	Recovered.	Died.	Fatality per cent.	Recovered.	Died.	Fatality per cent.
0–1 ..	...	..	..	1	...	...	1	...	...	0–1 ...	3	...	...	4	...	...	7	...	....
1–2	5	.	..	1	.	...	6	...	...	1–2 ...	4	1	20·0	1	1	50·0	5	2	28·5
2–3 ...	4	3	42·8	6	...	...	10	3	23·0	2–3 ...	9	1	10·0	12	..	...	21	1	4·5
3–4 ...	7	...	...	11	..	...	18	..	...	3-4 ...	19	2	9·5	19	1	5·0	38	3	7·3
4–5 ...	10	...	...	13	...	...	23	..	...	4–5 ...	23	3	11·5	29	1	3·3	52	4	7·1
5–6 ...	19	..	..	11	1	8·3	30	1	3·2	5–6 ..	34	4	10·5	34	2	5·5	68	6	8·1
6–7 ..	8	...	...	13	...	...	21	..	...	6–7 ..	29	3	9·3	26	...	...	55	3	5·1
7–8 ..	7	...	...	12	..	...	19	..	...	7–8 ...	15	...	...	23	1	4·1	38	1	2·5
8–9 ...	4	.	...	8	..	...	12	...	...	8–9 ...	17	2	10·5	18	1	5·2	35	3	7·8
9–10 ...	2	...	..	8	.	...	10	..	...	9–10 ...	15	1	6·2	17	2	10·5	32	3	8·5
10–15 ...	12	.	...	14	..	...	26	...	...	10–15 ...	50	1	1·9	47	1	2·0	97	2	2·0
15–20 ...	4	...	...	10	...	...	14	..	...	15–20 ...	14	..	...	18	...	...	32	...	...
Over 20 ..	1	...	...	6	...	...	7	...	...	Over 20 ...	12	...	...	24	...	...	36	...	...
Totals..	83	3	3·4	114	1	0·8	197	4	1·9	Totals ...	244	18	6·8	272	10	3·5	516	28	5·1

HAM GREEN HOSPITAL.

TABLE V.

The Stage of the Disease when Patients were admitted to Hospital.

	DAYS OF 1ST WEEK.							WEEK OF ILLNESS.				
Disease.	1	2	3	4	5	6	7	1st	2nd	3rd	4th & over.	Total.
Scarlet Fever	—	6	40	69	49	23	6	193	16	4	6	**219**
Diphtheria	—	13	46	88	99	82	56	384	62	1	3	**450**
Enteric Fever	—	—	—	—	—	—	1	1	10	2	—	**13**

HAM GREEN HOSPITAL.

TABLE VI.

Complications observed in Patients discharged during 1908.

Scarlet Fever.

	Otorrhœa.	Rhinorrhœa.	Albuminuria	Adenitis.	Pleurisy.	Nephritis.	Pneumonia.	Arthritis.	Cervical Abscess.	Carditis.	Relapse.	Mastoid Abscess.	Onychia.	Bronchitis.
In 197 non-fatal cases ...	25	20	7	3	1	5	...	6	2	1	2	1	4	...
In 4 fatal cases ...	2	2	...	3	...	...	1	1	...	...	...	...	...	2
Total 201 cases	**27**	**22**	**7**	**6**	**1**	**5**	**1**	**7**	**2**	**1**	**2**	**1**	**4**	**2**
Percentage	13·4	10·9	3·4	2·9	0·4	2·4	0·4	3·4	0·9	0·4	0·9	0·4	1·9	0·9

Diphtheria.

	Paralysis.	Vomiting.	Otorrhœa.	Adenitis.	Epistaxis.	Pneumonia.	Cellulitis.	Meningitis.	Bronchitis.	Relapse.	Nephritis.	Rhinorrhœa	Cervical Abscess.
In 441 non-fatal cases	62	5	15	7	5	2	...	...	...	2	2	37	4
In 28 fatal cases ...	7	14	1	9	2	4	4	1	2	...	...	10	...
Total 469 cases ...	**69**	**19**	**16**	**16**	**7**	**6**	**4**	**1**	**2**	**2**	**2**	**47**	**4**
Percentage	14·7	4·0	3·4	3·4	1·4	1·2	0·8	0·2		0·4	0·4	10·0	0·8

HAM GREEN HOSPITAL.

Statistics for each Year since opening of Hospital.

TABLE VII.

Admissions Classified according to DISEASE.

YEAR.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Mixed Infections.	Other Diseases.	TOTAL.
1899 (From July 24th)	194	4	21	...	7	226
1900	571	70	38	..	...	679
1901	452	27	44	...	4	527
1902	536	128	42	21	...	727
1903	370	323	11	11	...	715
1904	374	317	26	2	...	719
1905	476	310	...	19	12	817
1906	439	342	8	9	19	817
1907	370	445	...	43	31	889
1908	219	513	13	11	21	777
Totals	4,001	2,479	203	116	94	6,893

Discharges and Deaths.

YEAR.	Scarlet Fever.		Diphtheria.		Enteric Fever.		Mixed Infections and other Diseases.	
	Discharges.	Deaths.	Discharges.	Deaths.	Discharges.	Deaths.	Discharges.	Deaths.
1899 From July 24)	127	5	3	...	3	...	5	...
1900	485	15	50	12	33	1	...	...
1901	452	10	34	1	39	5	...	..
1902	540	11	67	14	33	4	18	2
1903	377	4	308	17	17	2	12	...
1904	326	7	310	20	24	2	2	...
1905	426	16	271	13	...	...	25	5
1906	433	12	314	20	3	1	28	2
1907	405	15	387	34	4	..	58	1
1908	197	4	516	28	11	...	41	3
Totals	3,768	99	2,260	159	167	15	189	13
Average Fatality per cent.	2·5		6·5		8·2		6·4	

NOVERS HILL HOSPITAL.

Report for the Year 1908.

Patients remaining from 1907 ..	39	114
Patients admitted	75	

Patients discharged	109	114
Patients transferred to another Institution	1	
Patients died	4	
Patients remaining	0	

Hospital closed October 24th.

The patient transferred to another Institution had undergone operations for removal of the Astragalus caused by Suppurating Synovitis of Ankle and subsequent Necrosis. The immediate surroundings of an infectious diseases hospital were not considered to be conducive to rapid recovery.

Amongst other diseases, complications or sequelæ were the following cases :—

Five Chicken-Pox, three Diphtheria, six Albuminuria and Nephritis, three Whooping Cough, four Heart trouble, two Otorrhœa, eight were doubtful Scarlet Fever cases, of these five developed a typical rash 11 days after admission ; one Facial Erysipelas followed by Cerebral Meningitis and death ; one Dacryo-Cystitis ; six proved not Scarlet Fever ; and one supposed return case. There were several other little ailments or complications of no particular interest, which are duly recorded in the Hospital books.

Small-pox.

One case was admitted at the close of the year and remained under treatment.

The Administrative and Nursing duties continue to be performed to my satisfaction.

G. C. PAULI, M.R.C.S., L.R.C.P.,

Medical Attendant.

	NOVERS HILL.		HAM GREEN.	
	Year ending 25th March, 1908	Year ending 25th March, 1909	Year ending 25th March, 1908	Year ending 25th March, 1909
Salaries and Wages :—	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Medical Superintendent	50 0 0	50 0 0	50 0 0	50 0 0
Medical Officer	200 0 0	200 0 0	219 15 0	258 0 0
Special Services as *locum tenens*	....	....	16 16 0	16 16 0
Matron	78 0 0	83 0 0	108 0 0	108 0 0
Nurses, Officers, and Servants	785 10 2	701 15 5	2419 13 0	2221 3 7
Tithe Rent	....	1 9 6	1 18 4	3 17 0
Rates	195 15 8	207 10 9	416 1 1	425 4 7
Rent of Telephone	10 10 0	10 10 0	41 0 0	41 0 0
Rent of Cottage	....	....	9 10 0	9 9 0
Insurance Premiums	13 2 11	1 12 6	53 4 8	7 1 3
PROVISIONS, viz. : Meat	189 0 4	108 13 6	403 9 11	385 10 10
Fish and Ice	39 7 6	27 18 0	76 14 1	65 11 11
Poultry and Game	10 3 7	4 5 11	49 15 6	46 15 1
Bread and Flour	49 19 7	32 3 5	166 7 1	175 12 11
Milk, Butter and Eggs	192 2 4	116 17 1	589 7 4	551 15 0
Groceries	95 3 2	70 17 11	369 19 10	284 13 9
Vegetables and Fruit	19 12 3	9 15 1	198 19 0	187 6 3
Wine and Spirits	....	1 2 0	9 12 0	9 12 6
Mineral Waters	1 15 0	1 7 6	14 7 6	15 7 6
Timber	....	....	7 5 1	....
Coal and Firewood	191 10 7	140 4 2	711 0 6	671 12 10
Water, and Hire of Meter	28 17 1	24 7 6	268 5 0	212 5 0
Gas	74 15 7	54 3 3	....	....
Painters' Work	1 15 5	7 8 3	161 13 4	36 18 3
Plumbers' Work	3 1 5	26 0 4	....	6 14 10
Ironmongery, Fittings, and Repairs	46 11 2	82 5 2	54 10 9	36 11 10
Electrical Fittings, and Inspection of same	....	....	31 12 1	37 14 0
Maintenance of Battery	....	....	33 10 9	30 0 0
New Boiler	11 6 0	....	....	16 10 0
Cleaning Materials and Baskets	52 12 8	54 13 3	213 11 5	167 8 11
Oil, Candles and Paint	1 8 9	....	....	....
Sweeping Chimneys	1 12 11	....	9 9 2	9 17 6
Crockery, Cutlery and Glass	8 15 5	4 9 6	22 14 3	24 12 4
Mould, Seed, Plants and Manure, etc.	21 6 4	30 6 2	....	8 10 0
Weed Killer	....	6 7 11	....	....
Lawn Mower	2 10 6	....	....	....
Linen, Drapery, and Uniform Clothing	32 18 2	42 2 0	105 18 9	96 0 8
Cleaning and Repairing Clocks	....	....	2 2 0	....
Drugs and Chemicals	41 0 7	20 17 11	244 18 7	221 18 0
Repairs to Roadway	....	....	....	18 19 6
Removing Bodies	....	....	12 10 0	9 10 0
Furniture, Fittings, and Bedding	12 3 4	30 9 9	6 1 0	40 12 6
Mackintosh Sheeting	....	....	....	71 11 4
Printing, Stationery, and Advertising	30 11 5	31 12 3	70 19 1	63 1 0
Papers, Periodicals, and Books	4 4 5	4 7 9	11 9 3	7 18 1
Postage and Contract Stamps	7 13 9	8 3 8	17 7 3	17 17 4
Hauling and Cab Hire	16 4 9	13 8 8	91 2 3	92 15 3
Toys	2 13 6	....	5 10 3	6 2 2
Carriage of Goods, and Bridge Tolls	....	....	5 3 2	....
Railway and Tram Fares	....	....	7 3 3	13 0 7
Medical Consultations	3 3 0	9 9 0	10 4 0	2 2 0
Trestles and Planks	2 10 0	....	....	....
Slop Hopper	2 18 0	....	....	....
Contribution to Workmen's Compensation Fund	3 9 4	3 9 4	9 8 7	9 8 7
Washing Machine	....	....	82 0 0	....
Weighbridge and Foundations	....	....	35 13 6	....
Slop, Sink, and Drain Clearing Machine	....	....	9 2 6	....
Report re Engineering Staff	....	....	4 4 0	....
Petty Disbursements	5 8 6	9 19 7	8 13 5	16 9 11
Kitchen Utensils	4 18 5	....	....	....
TOTAL EXPENDITURE IN THE YEAR	**£2546 3 6**	**£2233 4 0**	**£7467 13 6**	**£6808 19 7**

J. CROMPTON, F.S.A.A., City Accountant.

Number of Patients in the year	175	94	914	947
Total Cost per week for each Patient, including all the Working Expenses	s. d. 30 7	s. d. 32 8½	s. d. 18 9	s. d. 24 3

PART IV.

REPORT OF THE CHIEF INSPECTOR OF NUISANCES.

Public Health Department,
40 Prince Street,
February, 1909.

1908.

To the Chairman and Members of the Health Committee.

Gentlemen,

I have once again the honour of submitting the following brief report, with summaries, showing the amount of work effected in this Department during the year 1908.

The complaints and applications received at the Office numbered 1,101, as against 1,090 in the previous year, an increase of 11, all of which were duly enquired into as quickly as possible, and wherever a nuisance was found, steps were at once taken for its abatement, but in 268 of the cases so complained of, no nuisance was found, so that no action was necessary ; this works out at 24·3 per cent, of the whole, last year such cases were 23 of the whole. A considerable number of the applications were from persons changing residence who wished to have some guarantee that the house they were going to was in a good sanitary condition, and in this way a considerable amount of good sanitary work has been accomplished, as people will not take a house when the drains, &c., are known to be defective, and the owners prefer doing whatever is necessary than to lose the prospect of a tenant.

1,759 cases of notifiable infectious disease were duly enquired into by the District Inspectors and the results entered on the case cards as required by the Medical Officer of Health. Last year such cases numbered 2,173, a decrease of 414, these cases required 5,013 visits to the infected houses ; many of such cases, being nursed at home, require frequent visiting ; and when children attend any of the Elementary Schools, cards are made out by the Inspectors and sent to the Head Master or Mistress of the School as well as to the Clerk to the Education Committee, all of which entails a considerable amount of Clerical work, 3 cards being required for each case.

1,759 infected houses were disinfected after such cases and 39,401 articles of bedding, clothing, &c., removed therefrom and disinfected by super-heated steam and returned to the houses, 440 similar articles were destroyed, their condition being such that disinfection was impossible.

The Clothing of all Patients removed to Ham Green and the Novers Hill Hospitals is not included in the above totals, but is disinfected at those Hospitals, which are both equipped with a Washington Lyons Steam Disinfector.

Non-Notifiable Infectious Diseases, such as Measles, Whooping Cough, Chicken Pox, Mumps, &c., were also visited on receipt of notification from the Elementary Schools that Children from certain houses were absent from school in consequence of such disease, 1,423 visits were paid to such houses and leaflets of precautions, necessary in such cases, given to the parents, and in acute cases the parents were advised to secure proper medical attendance, and often did so. Disinfection is also offered and carried out wherever considered advisable, or of any practical use.

Small Pox has not caused much extra work during the year, as only one case was notified, so that I need say no more about it.

Phthisis has again caused a considerable amount of work, 516 cases having been notified, and 397 deaths from this disease occurred during the year, showing a slight decrease in the number of cases notified, and a slight increase in the number of deaths, compared with last year, when they were 542 and 384 respectively. At this present time there are between 700 and 800 cases of this dire disease under observation in this City, all of which are visited periodically, and all rooms occupied by such patients, are after death or removal from one house to another (which is of frequent occurrence), disinfected by spraying them with formalin, and very frequently the walls are stripped and repapered. It will thus be seen that a large amount of additional work has been put on the Inspectors by the voluntary notifications of this disease, and this work will undoubtedly be largely increased in future as the Public Health (Tuberculosis) Regulations 1908, which came into operation on the first day of January, 1909, makes it compulsory for all Poor Law Officers to notify to the Medical Officer of Health, all cases of Phthisis coming under their notice, and if any such case is removed from one house to another, such removal has to be notified in a similar manner ; and this sometimes occurs four or five times in a few months, but if this additional work, and the action taken thereon, results in any diminution of the number of cases of this terrible disease, the work will not have been useless.

———:———

Notices to Abate Nuisances.

The informal or prelimary notices numbering 1,633 were generally so successful that only 298 Formal or Statutory Notices were required, and the majority of these had reference to partly or combined drains : all were complied with, without appealing to the Justices, although several parties were summoned, but did the necessary work before the day of hearing, the summonses being then withdrawn on payment of costs. In addition to the written notices many verbal requests were given to owners of property with satisfactory results; besides this, I find I have personally written 1,066 letters during the year.

The usual Summary of work effected by the District and Special Inspectors is appended.

Houses let in Lodgings or Tenement Houses.

These are about the same number as last year. 214 May notices to Limewash and Cleanse such houses in accordance with the Bye-Laws were served, all of which were complied with. There are a considerable number of similar houses awaiting measurement and other particulars necessary for registration under the Bye-Laws, as as soon as the requisite assistance is forthcoming. This has been promised but is a long time coming, which is regrettable, as there is no doubt the Registration and continued supervision of such houses prevents much overcrowding, and keeps the houses in a cleaner and better condition than they otherwise would be, and in this manner does more for the betterment of the health of the occupants of the houses so occupied, as well as the surrounding neighbourhood generally.

Housing of the Working Classes Act, 1890.

During the year just ended, 30 houses have been reported as unfit for human habitation under Section 32 of this Act, of these 18 have been made habitable, and 12 closed, 6 of these were closed after notice without appealing to the Justices for a closing order. The others were closed by Justices order.

A Justices order was applied for in 15 cases, but in 9 cases the closing order was only made until such time as the houses were made habitable, every house being visited by the Justices before giving their decision. A considerable number of similar houses are now under observation to be dealt with.

Combined or Party Private Drains.

This work still continues, 22 such drains having been dealt with during the year, to which the drains of 190 houses were connected and the cost in all cases charged to the owner, whether the work of re-construction was done by the Surveyor, of the City Engineer's Department, or by private tradesmen. The Bristol Corporations Act of 1905 renders the definition of "Private Drains," v. Sewer very clear and does away with almost all of the old time controversy about "Drains v. Sewers."

Slaughter Houses.

Now number 107, as against 114 last year, viz. : 65 with permanent licenses, 1 for Foreign Animals at Avonmouth Docks, and 2 knackers' yard. During the past year 6 of the old licensed slaughter houses have been closed and the premises used for other purposes, also the Foreign Animal slaughter house at Cumberland Basin has been closed, in consequence of the fact that the importation of Foreign Animals to the City Docks has ceased—which is very regrettable.

Your committee's two Inspectors of Meat, Fish, &c., Messrs. Thomas & Gitsham, have as usual been most energetic, and during the year have been responsible for the destruction of 27 tons, 9 cwt., 3 qrs., and 9 lbs. of Meat of various kinds which were unfit for food.

Consisting of :—

The entire carcases of 24 Beasts.
,, ,, 41 Sheep.
,, ,, 110 Pigs.
,, ,, 4 Calves.

The remainder consisting of parts of carcases and odd pieces of meat, internal organs, &c.

These were also destroyed for the same reason, 921 rabbits, 907 packages of fish, (not weighed), 437 packages of vegetables, 190 packages of fruit of various kinds, 40 lbs. of cheese and 20 tons of potatoes, none of which were seized under the Public Health Act, except the potatoes, which were imported from Hamburg, and a Magistrates order had to be obtained for their destruction, but no prosecutions followed as they had been delayed and damaged in transit, and there was great difficulty in proving ownership.

The question of providing Public Abattoirs does not appear to be making much headway, for which I am very sorry, for in my opinion the inspection of meat cannot possibly be considered adequate or complete unless the entire carcase of every animal slaughtered, with the whole of the internal organs has been inspected, before any part of it is exposed for sale, but this is quite impossible for two Inspectors to do with 107 private slaughter houses scattered all over the City. I again bear testimony to the fact that almost all the Butchers in a large way of business, and the whole of the bacon curers in the City whenever they have a suspicious carcase which the Inspector has not seen, send to the office and put the carcase on one side until it has been inspected, and then if found to be diseased or unfit, surrender it without further trouble.

I am extremely sorry that the importations of Foreign Animals to Avonmouth Docks has stopped, and sincerely hope that the trade will soon be in full swing again.

Factory and Workshop Act.

The work in connection with this Act has again been carried on without friction of any kind between H. M. Inspectors and this department, and as usual the communications between the departments have been many and frequent. There are now 1,740 Workshops registered, which is an increase from last year, the numbers of these vary from time to time, as new ones are registered, others are discontinued, but immediately a new one is registered it is visited to see that the Sanitary arrangements are in order. The appended summaries will show that 1,306 nuisances of various kinds have been abated at these places during the year, to which 5,595 visits were paid by the two Inspectors detailed for this work, which must be of untold benefit to the large number of workers employed.

In addition to this the homes of 1,281 out-workers were visited resulting in the discovery of 66 Sanitary defects which were remedied as quickly as possible by the owners of the houses under notice from the Inspector. Lists of such out-workers have to be sent to the Authority twice a year—February and August—by the employers, and the work done at home consists almost entirely of tailoring, boot and corset making. The names and addresses of such workers do not vary much from time to time.

Offensive Trades.

Have again been kept under observation, and 46 nuisances of various kinds found to exist on the premises have been abated. It is obvious, however, that from the very nature of the work carried on, there must at times be more or less effluvia emanating from such trades, hence the necessity of careful watching and frequent visiting to see that the best and most practical means for the preventions of effluvia from such works have been adopted.

Smoke Nuisances.

241 observations of smoke have been taken during the year, and actions taken thereon resulted in the abatement of 45 nuisances from the emission of black smoke, this is considerably in excess of any previous year. This work which is still in active progress occupies a large amount of time as each observation to be of any practical use, must continue for at least one hour. I am glad to say that manufacturers generally at last understand that the emission of black smoke from their chimneys means a waste of fuel. Much of this waste is however due to the carelessness of stokers. There are no special smoke

Inspectors in Bristol, and no Bye-laws relating thereto, so that each case has to be dealt with on its merits as occasion arises.

Dairies, Cowsheds and Milkshops.

Of the 81 Dairy Farms within the boundaries of the City, 37 were added by the extensions of the boundaries in 1904, and they are almost entirely situated on the fringe of the City. Considerable improvements have been effected in the condition of these Farms since coming into the City, resulting in improved ventilation, lighting, paving, draining, and water supply. There is, however, room for still further improvements in some of them, which will be gone on with as soon as the season opens. The hugh piles of manure at one time so frequently found just outside, but in close proximity to the Cow Sheds, are not now found. Continual and frequent visiting is accountable for this material improvement. It has been very difficult to make some few of the farmers understand the reason for their being compelled to cart the manure away from the sheds daily, instead of letting it accumulate, and then carting it away at any time convenient to them.

There are also 1,020 Milkshops and Dairies registered in the City, the majority being small shops, where all sorts of articles besides milk are sold, which ought not to be, but at present there is no power to prevent it. Milk should only be stored and sold in shops confined to the sale of nothing but dairy products, the large and better class dairies give very little trouble, it is the small shops which give the trouble. Your Dairy Inspector, Mr. Casely, also has for some time past visited the cattle market every Thursday (market day) to see to the milking of the Cows there, and those visits have resulted in a very marked improvement in the cleanliness of the milker's hands, the milk vessels, and the cows' teats, &c. The sale of such milk for human consumption, should, in my opinion be prohibited as it cannot be wholesome, but I know of no power to enforce this.

	DAIRIES.		COWSHEDS.		MILKSHOPS.		
	Number Inspctd	Defects Found	Number Inspctd	Defects Found	Number Inspctd	Defects Found	Discon-tinued
1890	90	22	35	19	455	135	100
1891	258	140	36	13	660	332	115
	No. on Register		No. of Inspctns.				
1892	1053	85	1173	33	752	200	108
1893	1019	82	1069	45	732	79	126
1894	1203	89	1089	41	677	100	56
1895	1244	71	1587	31	720	74	53
1896	1271	60	2426	39	751	76	62
1897*	1273	62	2063	55	785	35	50
1898	1300	61	2466	19	775	60	65
1899	1400	61	2499	33	787	40	73
1900	1370	23	2347	30	772	20	78
1901	1300	22	2184	33	664	67	120
1902	1300	23	2620	31	668	55	100
1903	1200	23	2049	39	609	49	93
1904†	1015	62	2340	36	543	55	100
1905	1000	83	2453	37	476	57	39
1906	1000	26	2340	38	476	57	97
1907	1020	51	2379	40	451	56	47
1908	1038	25	1875	13	412	47	20

*City enlarged in November, 1897.

†City enlarged in October, 1904.

Common Lodging Houses.

The accommodation in private Common Lodging Houses is now as follows, viz. :—

Single Men	.. ..	1596	persons
Single Women	.. ..	27	,,
Married Couples 27	..	54	,,
Total	.. ..	1677	,,

The Registered Lodging Houses now number 41 in which there are 245 rooms.

There is also accommodation in the Municipal Lodging House for 120 single men, this house is, however, seldom full, although the accommodation is excellent, a roomy cubicle being allotted to each lodger, with up-to-date laundry appliances, and foot baths free, and a bath can be had for one penny. Other institutions, such as the Salvation and Church Army Shelters provide accommodation for about 250 others. The advent of the Municipal Lodging House has without a doubt been the means of considerably bettering the condition of the private lodging houses, many of which are small and very old, whilst others, although not originally constructed for the purpose, afford fairly reasonable and convenient accommodation.

The Bye Laws in regard to these houses have again been so well observed and adhered to that no legal proceedings have been necessary ; the contraventions of these Bye Laws have generally been of such a trivial character that a notice from your energetic inspector, Mr. Dimond, has very speedily had the desired effect.

The adoption of the Public Health Acts Amendment Act, 1907, will greatly facilitate the better regulation of these houses in the future, especially in respect to the provision of sanitary conveniences with adequate flushing appliances, the powers for which have hitherto been very vague in this City, but for some unknown reasons the Local Government Board have as yet withheld their sanction for its adoption.

My thanks are again due and are hereby gratefully tendered to the Town Clerk and his assistants, and the City Engineer and his staff for much valuable advice and assistance.

I am Gentlemen,

Your obedient Servant,

JAMES W. KIRLEY,

Chief Inspector of Nuisances.

Summary of Work effected in the Health Department during Twelve Years—1897-1908.

Prepared by the Chief Inspector of Nuisances.

TABLE SHOWING THE NUMBER OF NUISANCES ABATED AND OTHER WORK DONE IN EACH YEAR SINCE 1897.

	1897	1898*	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
Number of Nuisances abated	8049	12118	11837	10920	10151	10482	10542	11007	12232	10313	10369	9657
Polluted Wells closed	14	46	49	18	19	21	11	8	22	15	8	3
Houses supplied with Co.'s Water ...	76	151	150	78	83	65	47	51	91	50	44	33
Houses disinfected ...	855	682	951	2216	2652	3130	2866	2229	1950	2070	2057	1759
Articles of bedding, &c., disinfected or destroyed	33847	25852	29965	55807	66626	68330	63919	52813	53488	51026	46137	39841

*Enlarged City. †Enlarged City.

Summary of Nuisances Abated and Work done by, and under the Supervision of the Inspectors in the Health Department during the Year ending December 31st, 1908.

Prepared by the Chief Inspector of Nuisances.

NATURE OF WORK.	By District Inspectors.	By Inspector of Dairies, &c.	By Inspectors of Workshops &c.	By Inspectors of Slaughter Houses, &c.	By Inspector of Common Lodging Houses.	By Inspector of Bake Houses.	TOTALS.
Visits and Re-visits	28696	2287	5595	19145	389	1242	57354
Drains entirely relaid, &c.	260	11	22	1		2	296
Do. partially relaid	603	10	55	6	1	3	678
W.C.'s fitted with new pans, &c. ...	691	2	95	6	2	1	797
Do. cleansed and amended	224	14	144				382
Do. fitted with flushing appliances ..	189	2	88	6	2	2	289
Additional W.C. accommodation provided	14		33			1	48
Dilapidated Houses repaired, &c. ..	463				9	11	483
Defective Roofs repaired	234	2	14	2			252
Sinks and Yard Gullies trapped ...	1236	21	75	16	1		1349
Yards paved by Owners	610	44	77	2			733
Cesspools abolished	13	3					16
Offensive Deposits removed	186	152	7	23		14	382
Keeping of Pigs, &c., prohibited ...	80						80
Smoke Nuisances abated	45					1	46
Offensive Trades do.	46						46
Polluted Wells closed	3						3
Company's Water provided to houses ..	24	6	3				33
Nuisances from overcrowding abated .	32		4				36
Dairies, &c., Cleansed and Improved ...		40					40
Workrooms and Passages, limewashed. &c.			612				612
Do. better ventilation secured ...			69			1	70
Rooms at Tenement Houses limewashed, &c.	1228						1228
Passages and Stairs at do. do.	342						342
Slaughter Houses limewashed				427			427
Do. Paving repaired ...				8			8
Limewashing, &c., secured		372			80	140	592
Other Nuisances abated	272	41	8	7	31	30	389
Totals	**6795**	**720**	**1306**	**504**	**126**	**206**	**9657**

No. of Complaints received and attended to	1101
,, Offensive trades visited	153
,, Smoke observations taken	241
,, Times smoke test applied to drains	1489
,, Notices served informal	1633
,, ,, ,, formal	298
Half-yearly Cleansing Notices served, Common Lodging Houses	80
,, ,, ,, ,, Dairies, Cowsheds, &c. ...	202
,, ,, ,, ,, Slaughter Houses ...	223
,, ,, ,, ,, Tenement Houses ...	214
,, ,, ,, ,, Bakehouses...	264
No. of Visits to houses *re* infectious disease	5013
,, Houses disinfected after such disease	1759
,, Articles of Bedding, &c., removed and disinfected ..	39401
,, Do. Do. and burnt	440
Total number of Articles dealt with	39841
Weight of Meat destroyed as unfit for food	27 tons 9 cwt. 3 qr. 9 lbs.

JAMES W. KIRLEY,
Chief Inspector of Nuisances.

City of Bristol.

FACTORY AND WORKSHOP ACT, 1901.

Report of the Medical Officer of Health on the Administration of the Act in the City of Bristol during the Year 1908 (Sec. 132, F. & W. Act. 1901).

Workshops.

The Factory and Workshop Act (1891) transferred the Sanitary control of "Workshops" and "Workplaces" from the Inspector of Factories to the City Council acting as the Urban Sanitary Authority.

A special Inspector of Workshops was appointed, Workshops were at once placed on the Register and inspected, and this control has been continuously exercised since its commencement up to the present. Upon the extension of the City in 1897, a second special Inspector of Workshops was appointed. The progress of the work year by year, is shown in the following table :—

TABLE 1. **Workshops.** CITY OF BRISTOL.

Showing particulars in regard to the Inspection of Workshops since 1891.

Year.	Population of City.	No. of Workshops on Register.	No. of Nuisances abated.	Visits & Revisits.	Particulars sent to H.M. Inspector.	Communications received from H.M. Inspector.
1892	223,592	134	215	970	—	5
1893	225,028	349	568	2377	303	15
1894	226.578	584	644	2188	128	18
1895	228,139	764	558	1978	29	32
1896	230,623	881	578	2456	10	35
1897	232,242	1042	660	2674	14	19
CITY ENLARGED.						
1898	316,900	1123	1203	4943	16	21
1899	320,911	1602	1117	4494	37	16
1900	324,973	1800	1004	4263	13	15
1901	329,086	1846	1005	4875	12	25
1902	334,632	1872	1187	5480	21	62
1903	338,895	1532	1110	5885	39	71
1904	343,204	1537	1237	5563	45	88
CITY ENLARGED.						
1905	358,515	1611	1366	4973	25	52
1906	363,223	1652	1058	5141	14	37
1907	367,979	1611	1305	5224	36	63
1908	372,785	1740	1306	5595	19	50

The details of work secured during the year 1908 are shown in the following table :—

TABLE 2. **Workshops.** CITY OF BRISTOL.

Work secured by the Special Inspectors of Workshops, etc., in the City of Bristol, during the year 1908.

Total Visits and Re-visits	5595
Total Nuisances abated	1306

PARTICULARS OF NUISANCES DEALT WITH.

DRAINAGE AND FILTH NUISANCES.	Drains entirely relaid	22
	Drains partially relaid	55
	W.C.'s fitted with new pans	95
	W.C.'s cleansed and amended ...	144
	W.C.'s fitted with flushing appliances	88
	Additional W.C. accommodation provided	33
	Sinks and Yard Gullies trapped ...	75
	Offensive Deposits removed	7
STRUCTURAL DEFECTS	Defective Roofs repaired	14
	Yards paved by Owners	77
LIMEWASHING AND CLEANSING.	Workrooms and Passages, limewashed and cleansed	612
VENTILATION AND OVERCROWDING.	Nuisances from overcrowding abated	4
	Better Ventilation secured in Workrooms	69
WATER SUPPLY.	Company's Water provided	3
	Other Nuisances	8

Home Work.

(SECS. 107 TO 115)

The following table shows particulars with regard to the lists of Outworkers received during the year 1908. The lists are kept by the Town Clerk, who forwards to the Medical Officer of Health the names and addresses of those Outworkers who reside within the District of the City of Bristol

TABLE 3. **Workshops.** CITY OF BRISTOL.

OUTWORKERS.

Showing Lists received during the year 1908.

Nature of Employment.	February Lists.		August Lists.	
	No. of Lists.	No of Outworkers.	No. of Lists.	No. of Outworkers.
Boot and Shoe Making	34	416	12	132
Cabinet Making, etc.	1	7	1	7
Manufacture of Wearing Apparel	33	1420	30	1302
Other Trades ...	3	11	3	12
	71	1884	46	1453

Upon receipt of the lists of Outworkers the Workshop Inspectors visit the premises as far as possible in conjunction with their work under the other provisions of the Act. The number of premises visited in 1908 was 1281, and 66 sanitary defects were found to exist, which were rectified ; in no instance was any case found where wearing apparel was being made,cleaned, or repaired in a house, whilst any inmate was suffering from Scarlet

Fever or Small Pox (see Sec. 109). Nor did any case require action to be taken under Section 110, for the reason that all such conditions as are specified in Sections 109 and 110, have, since the adoption of the Notification Act in 1890, been most carefully guarded against by a complete system of administering the Notification and Public Health Acts, in which these questions have always received special attention.

Bakehouses (Secs. 97—102).

In 1883 the Sanitary control of Bakehouses, which had from 1878 until that date been under the control of H.M. Inspector of Factories, was re-transferred to the Medical Officer of Health.

Considerable improvement in these premises has been secured, but, it is a drawback that no regulations are contained in the Act with regard to construction ; so that certain underground rooms, old dilapidated premises not fit for the purpose, and similar conditions, had to be tolerated.

The systematic inspection has been continued year by year with evident improvement.

In 1904 underground bakehouses received special attention under the Factory and Workshop Act 1901 : a considerable amount of alteration was secured and duly set forth in the Annual Report for 1904.

Workshops. TABLE 4. CITY OF BRISTOL.

BAKEHOUSES.

Showing defects found and remedied in each year since bakehouse inspection was instituted.

Year.	Particulars.	Total.
1884	Total contraventions found in respect of cleansing, lime-washing, defective drains, repairs, and defective ventilation.	342
1885	Ditto	244
1886	Ditto	96
1887	Ditto	132
1888	Ditto	69
1889	Ditto	65
1890	Ditto	89
1891	Ditto	80
1892	Ditto	71
1893	Ditto	36
1894	Ditto	57
1895	Ditto	74
1896	Ditto	57
1897	CITY ENLARGED IN 1897.	140
1898	Ditto	178
1899	Ditto	168
1900	Ditto	172
1901	Ditto	151
1902	Ditto	198
1903	Ditto	192
1904	CITY ENLARGED Including special work required in underground bakehouses.	250
1905	Ditto	230
1906	Ditto	232
1907	Ditto	281
1908	Ditto	205

Factory and Workshop Act, 1901.

Inspection of Bakehouses for the year 1908.

REPORT OF THE INSPECTOR IN RESPECT OF WORK DONE UNDER THE PROVISIONS OF THE ABOVE ACT, WITH PARTICULARS OF THE CONDITIONS FOUND.

The number of Bakehouses in operation at some period during the year was 337, which is a slight decrease as compared with recent years.

The number of inspections of these Bakeries numbered 1,242, with the result that a considerable improvement was noted to have taken place over that of last year in the general Sanitary Conditions of these places, as only 205 various contraventions and defects required to be dealt with, as compared with 281 in 1907.

The cause of this was, that the Lime Washing Regulation has been more promptly complied with, and greater attention paid to general cleaning of floors, utensils, fixtures, removal of trade refuse, &c.

Where necessary, repairs and improvements in accordance with modern practice have been secured in respect of drainage and improved Sanitary Accommodation, and these matters are kept under regular observation.

It was necessary to issue 202 verbal or written requisitions, and it is fair to say that they were promptly complied with in almost every case.

Details are given in table appended.

I am Gentlemen,

Yours obediently,

S. DIMOND, Inspector.

TABLE 5.
1908.

Table of Bakehouse Inspection for the Year.

With particulars of Condition, Contraventions, Action taken, and Results.

Total number of inspections and visits	...	1242
Number of Bakehouse premises found to be in good or passable order and condition	1040	
Ditto ditto not in satisfactory condition from one of the undermentioned defects	202	
	1242	1242

PARTICULARS OF DEFECTS AND CONTRAVENTIONS.

Total Defects.	Nature of Defects, etc., and Improvements secured.		Total Notices	Description of Notices Complied With.	
205	Contraventions of lime-washing regulations	140	202	Informal Notices given to abate nuisances, effect repairs, or comply with Regulations	150
	Ditto General cleaning	24		Various Written Notices served and complied with, or under way at end of the year ...	52
	Bakehouse premises with defective drainage	10			
	Ditto with defective floors, roofs, paving, or other dilapidations ...	12			
	Ditto with defective ventilation improv'd	1			
	Ditto Manure accumulations and other Nuisances	13			
	Waterclosets reconstructed and Flushed ...	1			
	Additional W.C.'s provided	1			
	Smoke Complaints	1			
	Traps put in (Intercepting)	1			
	W.C. removed	1			
205		205	202		202

S. O. DIMOND, *Inspector.*

FACTORY ACT. HOME OFFICE FORM.

Annual Report of the Medical Officer of Health for the year 1908, for the City of Bristol.

on the administration of the Factory and Workshop Act, 1901, in connection with

FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK.

1.—INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises. (1)	Number of		
	Inspections (2)	Notices Written (3)	Prosecutions (4)
Factories .. .. .. (Including Factory Laundries)	1171	481	None.
Workshops .. .. .. (Including Workshop Laundries)	3003		None.
Workplaces .. .. .. (Other than Outworkers' premises included in Part 3 of this Report)	1421		None.
Total ..	5595	481	None.

2.—DEFECTS FOUND FACTORIES, WORKSHOPS AND WORKPLACES.

Particulars. (1)	Number of Defects Found (2)	Remedied (3)	Referred to H.M. Inspector (4)	Number of Prosecutions (5)
**Nuisances under the Public Health Acts* :—				
Want of cleanliness	612	612	Re-employment of young persons 19	
Want of ventilation	69	69		
Overcrowding	4	4		
Want of drainage of floors	2	2		
Other nuisances	345	345		
†Sanitary Accommodation :—				
Insufficient	33	33		
Unsuitable or defective ..	239	239		
Not separate for sexes ..	2	2		
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (S. 101)	None	None		
Breach of special sanitary requirements for bakehouses (SS. 97 to 100) ..	None	None		
Other offences .. .. (Excluding offences relating to outwork which are included in Part 3 of this Report)	205	205		
Total	1511	1511	19	None

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* Including those specified in Sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force in the City, the Standard conforms to the Memorandum.

3.—HOME WORK.

*Nature of Work. (1)	†Lists. (2)	†Outworkers. (3)	(4)
Outworkers' Lists (S. 107) :—		Twice in the year.	
Lists received from Employers—	Twice in the year.	Contractors	Workmen
Wearing Apparel—Making, &c.	76	—	2906
Furniture and Upholstery	2	—	14
Stationery	6	—	25
	84	None.	2945
	Once in the year.	Once in the year.	
		Contractors	Workmen
	(5)	(6)	(7)
Wearing Apparel—Making, &c.	27	6	392
Numbers of Addresses of Outworkers received from other Councils (8)		175	
Numbers of Addresses of Outworkers forwarded to other Councils (9)		1857	
Notices served on occupiers as to keeping or sending lists (10)		51	
Prosecutions—			
Failing to keep or permit inspection of lists (11)		None.	
Failing to send lists (12)		None.	
Number of Inspections of Outworkers' premises (13)		1281	
Outwork in unwholesome premises, Section 108 :—			
Instances (14)		None.	
Notices served (15)		None.	
Prosecutions (16)		None.	
Outwork in Infected Premises, Section 109, 110.			
Instances (17)		None.	
Orders made (S. 110) (18)		None.	
Prosecutions (Sections 109, 110) (19)		None.	

---

* If an occupier gives out work of more than one of the classes specified in column 1, and subdivides his list in such a way as to show the number of workers in each class of work, the list should be included among those in column 2 (or 5 as the case may be) against the principal class *only*, but the outworkers should be assigned in column 3 and 4 (or 6 and 7) into their respective classes. A footnote should be added to show that this has been done.

†The figures required in columns 2, 3 and 4 are the *total* number of lists (received from employers who sent them both in February and August as required by the Act) and of the entries of names of outworkers in those lists. They will, therefore, usually be double of the number of such employers and (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name will often be repeated.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year. (1)	Number. (2)
Important classes of workshops, such as workshop bakehouses, may be enumerated here :—	
Workshops	1740
Workshop Bakehouses	337
Total number of workshops on Register ..	2077

5.—OTHER MATTERS.

Class. (1)		Number. (2)
Matters notified to H.M. Inspectors of Factories :— Failure to affix Abstract of the Factory and Workshop Act (S. 133)		19
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5)	Notified by H.M Inspector	50
	Reports (of action taken) sent to H. M. Inspector	50
Other		None.
Underground Bakehouses (S. 101) :—		
Certificates granted during the year ..		None.
In use at the end of the year		35

Note.—The Factory and Workshop Act, 1901 (s. 132), requires the Medical Officer of Health in his Annual Report to the District Council to report specifically on the administration of that Act in workshops and workplaces, and to send a copy of his Annual Report, or so much of it as deals with this subject, to the Secretary of State (Home Office). If the Annual Report is presented otherwise than in print, it is unnecessary to include in the copy sent to the Home Office the portions which do not relate to factories, workshops, laundries, workplaces or homework. The duties of Local Authorities and the Medical Officer of Health under the Act of 1901 are detailed in the Home Office Memorandum of December, 1904. A further Memorandum, on the Home Work Provisions of the Factory Act, was issued to all District Councils and Medical Officers of Health in October, 1906.

D. S. DAVIES, M.D.,
Medical Officer of Health.

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